DOCUMENT RESUME

ED 329 794 CE 057 413

AUTHOR	Smith, Jack; And Others
TITLE	A Model 2 + 2 Electronics Program Development Project. Final Product--Project #99420068.
INSTITUTION	Cooke County Coll., Gainesville, TX.; Gainesville Independent School District, Tex.
SPONS AGENCY	Texas Education Agency, Austin. Div. of Vocational Programs.
PUB DATE	30 Jun 89
NOTE	181p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	*Articulation (Education); College Mathematics; Course Descriptions; Course Evaluation; Curriculum Development; Educational Facilities Design; *Electronics; *Engineering Technology; High Schools; Instructional Materials; Occupational Information; Postsecondary Education; Program Implementation; Teacher Qualifications
IDENTIFIERS	*Texas

ABSTRACT

The Cooke County College and Gainesville Independent School District (Texas) jointly offer students the opportunity to obtain 4 full years of electronics training--2 in high school and 2 in college--through an articulation agreement. This "2 + 2" program gives students two options from which to choose depending upon their career goals: electronics technology program and electronics engineering technology program. Students can begin the math component of their formal training for a career in electronics in their junior year of high school. The 2 + 2 project provides training that leads to employment opportunities for entry-level electronics technicians and specialists. This model program development project guide includes: (1) goals and objectives; (2) timeline of project events; (3) 2 + 2 committee assignments; (4) facilities/equipment committee; (5) evaluation committee; (6) human resource assessment; (7) students preenrolled; (8) student needs survey; (9) student assessment tool; (10) Appendix A--textbook readability; (11) Appendix B--Microcomputer Evaluation and Screening Assessment profile; (12) Appendix C--sample assessment tracking form; (13) implementation, tracking, and follow-up plan; (14) course description; (15) competency profiles; (16) articulation agreement; (17) evaluation criteria scale, evaluation committee recommendations, and rebuttal of the evaluation; (18) facilities and equipment; (19) teacher approval criteria; (20) retrospect, recommendations, and caveats; (21) notice of grant award; (22) committee minutes; (23) syllabi--DC and AC circuit analysis, solid state devices, and analog circuits; (24) 108 references; and (25) promotional literature. (NLA)

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2+2 ELECTRONICS

A Model Program Development Project

Prepared For The

TEXAS EDUCATION AGENCY

Program Improvement Grant Funded By The Carl D. Perkins Act

Final Product – Project #99420068

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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GAINESVILLE INDEPENDENT SCHOOL DISTRICT

And

COOKE COUNTY COLLEGE

Gainesville, Texas

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COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Office for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964; EXECUTIVE ORDERS 11246 AND 11375; TITLE IX, 1973 EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; AND VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED IN 1974.

It is the policy of the Texas Education Agency to comply fully with the nondiscrimination provisions of all federal and state laws and regulations by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any programs or activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency makes positive efforts to employ and advance in employment all protected groups.

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FINAL REPORT OF:

VOCATIONAL EDUCATION PROGRAM IMPROVEMENT PROJECT
ELECTRONICS 2 + 2
GAINESVILLE ISD
PROJECT # 99420068

The project reported herein was performed through a contract with the Texas Education Agency under the provisions of the Carl D. Perkins Vocational Education Act (Public Law 98-524). Contractees undertaking such projects are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Texas Education Agency position or policy.

June 30, 1989

Signature of Project Director

Date

A Model
2 + 2 ELECTRONICS
Program Development Project

Final Product
Project #99420068
Program Improvement Grant
Fundded By the Carl D. Perkins Act

Prepared For The
TEXAS EDUCATION AGENCY

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PROBELM AREA TOWARD WHICH THE PROJECT WAS DIRECTED

The 2+2 project will provide training that will lead to employment opportunities that will satisfy industry needs and requirements for entry level electronics technicians and specialists.

"2+2 Project" will be used throughout this document in lieu of the official title, "A Model 2+2 Electronics Technology Program Development Project". The 2+2 Project is a joint venture by Cooke County College and Gainesville Independent School District to develop an Articulation Agreement and an Electronics Programs to support the agreement.

Other secondary and post-secondary institutions have developed quality articulation agreements designed to reduce repetition of the same course materials, and accelerate a student through the educational and training process.

The major advantage and uniqueness of the planning, development and implementation procedures in this document is the fact that neither institution had an Electronics Program, nor faculty with the necessary subject matter expertise to develop the program.

The first step taken by the two institutions to bring about the culmination of their dream was to agree to determine the need and feasibility of the project.

A preliminary survey was conducted in Cooke County College service area, Cooke, Denton, and Montague Counties, which indicated a strong need by industries in the service area for electronics technicians.

The second step in this process was the writing of a grant proposal by each institution to their respective state agencies. After approval of grants from the Texas Education Agency, and the Texas Higher Education Coordinating Board, each institution hired a Coordinator to develop the Electronics Program, and the Articulation Agreement.

Graduates of the program can expect to acquire gainful employment at currently operating electronics related industries as well as new electronics manufacturing firms presently under construction in the Cooke County College and Gainesville Independent School District service area.

The project has been coordinated and developed under the guidelines of each grant. Funding for both grants was provided by the Carl D. Perkins Act.

Records, results, and accomplishments of the development of this project can be found throughout this document.

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A MODEL 2 + 2 ELECTRONICS TECHNOLOGY PROGRAM DEVELOPMENT PROJECT

GAINESVILLE HIGH SCHOOL & COOKE COUNTY COLLEGE

GOALS AND OBJECTIVES

GOALS:

The goals of the Electronics program are as stated below:

1. To develop a fully Articulated Model 2+2 Electronics Technology Program that will serve as a guide for secondary and post-secondary institutions wishing to develop similar articulated programs.
2. To prepare students for gainful employment in the high tech field of Electronics.
3. To prepare students for future growth as the technologies advance or change.
4. To develop a fully integrated 2+2 Articulated Electronics Program between Gainesville High School and Cooke County College.
5. To establish linkage between all segments of industry, business and education.
6. To impact on education in general by providing a mechanism to reduce the drop-out rate at secondary and post secondary schools.

OBJECTIVES:

The goals of this project have been or are expected to be successful through a series of objectives stated below:

1. A competency based curriculum developed by a steering committee consisting of members form industry, business and education.
2. To plan for and select state-of-the-art equipment and facilities with the aid of subject matter experts.
3. To develop a criterion referenced assessment system that will provide aptitude values for screening students.
4. To develop an Articulation Agreement between Gainesville High School and Cooke County College that will reduce or eliminate repetition in course materials.
5. To seek approval for the start up of this program from the Texas Higher Education Coordinating Board.
6. To complete the implementation plan starting Fall '89.

TIMELINE OF EVENTS

Timeline of events related to the submission of an application to the Coordinating Board for approval of an Electronics Technology Program and Electronics Engineering Technology program option at Cooke County College.

MONTH DAY YEAR	EVENT
Fall, 1986	Cooke County College President initiates action to determine educational and training needs most desired by area business and industries.
Fall, 1986	Board of Trustees conducts a series of workshops to develop a plan of action for new program development.
Spring, 1987	Massive Needs Survey done among area employers to determine greatest potential for new program development.
Summer, 1988	Cooke County College and Gainesville ISD jointly agree to develop a model 2+2 Electronics Program.
November 21, 1988	Mr. Arvel Joe Shults employed as the Coordinator for the Model 2+2 Electronics Technology Program Development Project
November 23, 1988	Project coordinator visited with personnel associated with the Electronics Technology program at Grayson County College, Denison, Texas.
November 29, 1988	Joint meeting of personnel from Gainesville I.S.D. and Cooke County College to discuss project objectives. GISD representatives indicated that Jack Smith would be employed at the beginning of the spring semester to coordinate the program development activities of their school system.
December 1, 1988	Joe Shults completed a first review of electronics programs catalog listings for other community colleges within the State of Texas and selected colleges outside the state.
December 5, 1988	Completed the "first draft" of a conceived curriculum model for Electronics Manufacturing Technology and Electro-Mechanical Technology. These documents are to be utilized to establish basis for discussions with the steering and articulation committees.
December 7, 1988	Joe Shults began calling on local businesses and industries to acquaint them with the project and to develop a prospective membership list for the articulation and steering committees.
December 8, 1988	Shults visited with Dale Alsup of Cooke County College and personnel from Grayson County College concerning program math requirements. Sample texts were ordered.
December 9, 1988	Completed initial Electro-Mechanical program documentation and delivered same to Whitten Williams, program director, for consideration and suggestions.

December 12, 1988	Reviewed specifications for equipment to be utilized in a model electronics laboratory. Vendors contacted were: Michael Tracy (Lab-Volt Systems), Mark Robinson (Technology Training Consultants), Owen Savage (Teaching Systems, Inc.) and Bruce Buehler (Technical Laboratory Systems, Inc.)
December 14, 1988 through December 31, 1988	Continued to develop materials for activation of the steering and articulation committees.
January 3, 1989	Mr. Jack Smith comes on board as the coordinator for the high school portion of the 2+2 project.
January, 1989	Visited numerous educational institutions and businesses to develop relations for implementing articulation and steering committees.
February, 1989	Constructed a data base of competencies for steering committee members to use in developing course objectives for each of the proposed electronic courses.
February 22, 1989	Activated Articulation and Steering Committees in a combined session and briefed the Committees on the requirements of the Grant. Discussed ~~the~~ labor market survey and established industry need for the program. Implemented survey of competency profiles needed by those industries. Industries represented by committees are listed on the committee assignment document. Committee members voiced a strong desire to change the emphasis in the two programs to a strong general technology base with options for Engineering Technology.
March 29, 1989	Articulation and Steering Committee meeting to discuss proposed program and Articulation Plan. Steering Committee approved proposed curriculum for Electronics Technology Program and Electronics Engineering Program.
April 11, 1989	Lab-Volt made equipment presentation.
April 19, 1989	Teaching Systems made equipment presentation.
April 20, 1989	Technology Training Consultants made equipment presentation.
April 28, 1989	Technical Laboratory Systems, Inc. made equipment presentation.
May 3, 1989	Articulation Committee Meeting to discuss the Articulation Plan. Articulation plans approved will be signed by Dr. Joyner and Mr. Uselton.
May 9, 1989	Drs. Kenneth Washburn and Doug Keenan met for consultation and recommendation of equipment and facilities.
May 10, 1989	Dr. Jerry Moorman provided a formal recommendation for the Assessment Instrument for the program
May 10, 1989	The Gainesville Board of Education approved the 2+2 Electronics Program Articulation Agreement between Cooke County College and Gainesville I.S.D.

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May 15, 1989	Cooke County College Board of Trustees approved the Electronics Program and authorized Dr. Joyner to sign Articulation Agreement.
May 18, 1989	Les Stewart met and surveyed needs for facilities/equipment and provided a recommendation.
May 19, 1989	Administrative review of 2+2 Final Product.
May 22 & 23, 1989	Evaluation Committee Meeting to discuss the mechanics of 2+2 Program for the Gainesville High School and Cooke County College.
May 24, 1989	Facilities and Equipment Sub-Committee Meeting to discuss vendor presentations and proposals. Facilities and Equipment evaluation priority and recommendations were discussed.
May 25, 1989	Evaluation Committees recommendations incorporated into Degree Plans and final product.
May 26, 1989	Draft copy of Electronics Program sent to Texas Higher Education Coordinating Board for review and approval.
May 31, 1989	Draft copy of Final Product sent to Texas Higher Education Coordination Board for review and approval.

2+2 COMMITTEE ASSIGNMENTS

	ARTICULATION	STEERING
Luther Bud Joyner	X	X
Charles Uselton	X	X
Joe Shults	X	X
Jack Smith	X	X
Whitten Williams	X	X
Tom Loftin	X	X
Thomas J. Risinger	X	X
Eduardo Gaytan	X	X
Therril Valentine		X
Kenneth Washburn		X
Doug Keenan		X
Margaret Duncan	X	
Dale Alsup	X	X
Clyde Yeatts	X	
Jim Fletcher		X
Carl Smith		X
Patty Gilbert	X	
Greta Miller	X	
Frank Fuller	X	
Bill McCarley	X	
Mike Martin	X	
Jo Anne Smith	X	
Terry Tuck		X
George Pavelek	X	X
Glenn Stockard		X
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PROGRAM DEVELOPMENT PROJECT

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March 30, 1987

Personnel Director

Human Resource Assessment

One of the most important resources to a business is a pool of well-trained workers from which they can select their employees. A key to having these well-trained workers is knowing which skills are needed by the businesses.

Cooke County College is in the process of compiling information on training opportunities available for economically or educationally disadvantaged adults in the North Texas area. Through a grant by the Coordinating Board of the Texas College and University System, we are locating these adults in Cooke, Denton, and Montague counties and referring them to various training programs.

You can be of assistance to us in this endeavor by completing the enclosed questionnaire. Through this survey, we are attempting to assess the human resource needs of the area for the next five years. We feel that this information from you will help us in directing not only disadvantaged adults, but also students to training for skills which are and will continue to be in demand. This process will help to establish that pool of well-trained workers from which you can choose your employees for the coming years.

I must stress that we are not acting as an employment agency. Your responses will be kept entirely confidential. The questionnaires will be processed by personnel at Cooke County College and summarized in statistical form. At no time will a potential employee be referred to your firm for employment based on your answers to this questionnaire.

Additionally, the Small Business Development Center (SBDC) at Cooke County College has included a few questions designed to assess human resource development needs in this area. The SBDC is in the process of planning program offerings for the training and development of employees for firms such as yours. Your input as to your areas of interest is greatly appreciated.

Thank you for taking the time to complete the questionnaire. If you have any questions about either the questionnaire or the project, please feel free to call me. We all must work together to meet the human resource needs of our area.

Sincerely,

Alicia Briney

Alicia Briney

3 0 0 0 5 6

HUMAN RESOURCE ASSESSMENT

This questionnaire is designed to obtain information that can help your organization improve its human resource training efforts and to match your human resource needs with the skills of the labor force in the community.

If the results of this questionnaire are to be helpful, it is important that each question be answered thoughtfully and frankly.

There are no right or wrong answers. Your answers will be kept in the strictest confidence.

I. YOUR BUSINESS

A. What is the nature of your business?

_____ Retail _____ Wholesale
_____ Service _____ Manufacturing

B. What are your principal products or services? ____________________

____

II. YOUR WORKFORCE

A. Please check the blank which corresponds to the approximate number of full-time employees you have (or anticipate having) on your payroll at this location:

	Less than 10	11-50	51-100	101-150	151-200	201-250	Over 250 (Please specify
Currently	____	____	____	____	____	____	____
In one year	____	____	____	____	____	____	____
In three years	____	____	____	____	____	____	____
In five years	____	____	____	____	____	____	____

B. Approximately how many of your full-time employees are in the following types of occupations?

	Less than 10	11-50	51-100	101-150	151-200	201-250	Over 250 (Please specify
Professional	____	____	____	____	____	____	____
Managerial	____	____	____	____	____	____	____
Sales	____	____	____	____	____	____	____
Clerical	____	____	____	____	____	____	____
Skilled Labor	____	____	____	____	____	____	____
Unskilled Labor	____	____	____	____	____	____	____
Other	____	____	____	____	____	____	____

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III. TRAINING OF EMPLOYEES

A. Generally speaking, do new entry level workers that you employ have sufficient training to meet your needs? _____ Yes _____ No

If no, briefly describe your major training needs: ________________
____
____

B. Do your employees require any "special training"? _____ Yes _____ No

If yes, how is this training usually accomplished?

_____ On-the-Job Training
_____ Vocational Technical Training
_____ Company Training and Development Department
_____ Other (Please Specify ____)

C. Does your company use outside sources for training? _____ Yes _____ No

If no, would your company consider using outside sources for training in the future? _____ Yes _____ No

If interested, where would you prefer the training to be held?
_____ On-site facility _____ College campus
_____ Other (Please specify ____)

D. Which of the following provisions does your company make for employees pursuing training or development? _____ leave time
_____ tuition reimbursement _____ other (______________________________)
_____ no provisions are made

E. Please check the educational level required of employees in the following types of occupations in your company.

	H.S. Equivalent	Vo-Tech Training	Specialized Training	2 Year College Degree	4 Year College Degree	No Educ Requirement
Professional	_____	_____	_____	_____	_____	_____
Managerial	_____	_____	_____	_____	_____	_____
Sales	_____	_____	_____	_____	_____	_____
Clerical	_____	_____	_____	_____	_____	_____
Skilled Labor	_____	_____	_____	_____	_____	_____
Unskilled Labor	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____

F. Over the next two to three years, do you anticipate needing workers who are either better or differently trained from those you currently employ? _____ Yes _____ No

If yes, briefly describe the additional training needs you anticipate: ____
____
____
____
____
____
____

G. If we have failed to ask a question concerning an aspect of training employees in your company, please feel free to comment. (Attach additional pages if necessary.) ______________________

____

____

____

____

____

IV. THE SMALL BUSINESS DEVELOPMENT CENTER

The SBDC provides specific courses for the purpose of training and developing employees. Please check the following courses to indicate your interest for personnel training and development in the future.

A. MANAGEMENT

_____ Management and Supervision
_____ Time Management
_____ Problem Solving and Decision Making
_____ Organizational Development
_____ Improved Business Meetings
_____ Motivation
_____ Customer Relations
_____ Human Relations
_____ Marketing
_____ Quality Control
_____ Personnel Management
_____ Delegation
_____ Team Building
_____ Leadership
_____ Evaluation and Performance Appraisals
_____ Employer Protection (EEOC)
_____ Motivation
_____ Other (__________________)

B. COMPUTER/DATA PROCESSING

_____ Introduction to Computer Science
_____ BASIC
_____ Assembler Language
_____ Word Processing
_____ Data Base
_____ Spread Sheets
_____ PC Networking
_____ RPG
_____ Fortran
_____ COBOL
_____ Other (__________________)

C. BUSINESS

_____ Accounting
_____ Bookkeeping
_____ Career Assessment
_____ Career Development
_____ Filing and Record Keeping

C. BUSINESS CONTINUED

_____ Manuscript Preparation
_____ Office Management
_____ Office Procedures
_____ Typing
_____ Shorthand
_____ Proofreading
_____ Business Math
_____ Other (__________________)

D. COMMUNICATIONS

_____ Business Writing
_____ Technical Writing
_____ Interviewing
_____ Public Speaking
_____ Reading Skills
_____ Nonverbal Communications
_____ Effective Listening
_____ Assertiveness Training
_____ English (2nd Language)
_____ Managing Conflict
_____ Creativity
_____ People Skills
_____ Telephone Techniques
_____ Other (__________________

E. TECHNICAL

_____ Machine Shop
_____ Video Technology
_____ Drafting
_____ Construction Technology
_____ Electronics
_____ Electricity
_____ Engineering
_____ Food Service
_____ Automotive Mechanics
_____ Fashion Marketing
_____ Welding
_____ Diesel Mechanics
_____ Air Conditioning/Refrig.
_____ Apparel Design

F. CORPORATE WELLNESS

_____ Weight Control
_____ Nutrition
_____ Jogging/Running
_____ Relaxation Techniques
_____ Health Promotion
_____ Lifestyle Planning
_____ Stress Management
_____ Smoking Cessation
_____ Health Assessments
_____ Aerobics
_____ Fitness/Exercise
_____ Behavior Modification
_____ First Aid/CPR
_____ Other (____________________)

V. THE FOLLOWING QUESTIONS ARE DESIGNED TO ASSESS YOUR INTEREST IN THE SERVICES OFFERED BY THE SBDC.

A. The SBDC provides free counseling to eligible businesses. Counseling is done by businessmen from SCORE (Service Corps of Retired Executives) and ACE (Active Corps of Executives). Would you be interested in receiving free counseling from the SBDC?
_____ Yes _____ No

B. The SBDC also provides information concerning several aspects of business. Please check the following topics to indicate your interest in receiving a publication concerning that topic.

_____ Financial Management and Analysis
_____ General Management and Planning
_____ Crime Prevention
_____ Marketing and Sales
_____ Personnel Management
_____ New Products/Inventions/Ideas
_____ Starting and Running a Business
_____ Recordkeeping and Taxation
_____ Purchasing and Inventory Control
_____ Legal and Risk Management
_____ Government Procurement
_____ Micro Computer Use

C. Soon the SBDC will have a counselor on staff to help businesses with the regulations involved in bidding for government contracts. Would you be interested in this service?
_____ Yes _____ No

D. Would you like the SBDC director to contact you in regard to any of its services? _____ Yes _____ No

Would you like to receive a copy of the results of this study?
_____ Yes _____ No

If yes to either of these questions, please indicate your name, phone number, and mailing address below:

Name ______________________________

Address ______________________________

____

Phone Number ______________________________

LABOR MARKET PROJECTIONS FOR COOKE, DENTON, AND MONTAGUE COUNTIES

During the period of March through June 1987, surveys were mailed to businesses in Cooke, Denton, and Montague Counties. The purpose of this survey was to determine the demand for specific types of job skills in this area for the next five years. The names and mailing addresses of the businesses were obtained from the County Tax Appraiser in each of the three counties. An initial mailing and a follow-up mailing yielded 105 usable responses to the questionaire. The businesses responding to the questionaire are listed in Appendix A. The results of the survey will be summarized in the following sections.

NUMBER OF RESPONDENTS FROM EACH COUNTY

The survey was returned by 50 businesses in Cooke County (47.6 percent), 37 businesses in Denton (35.2 percent), and 18 businesses in Montague (17.1 percent). The strong response from Cooke County appears to indicate a sincere interest in working with training institutions to develop a work force with marketable skills.

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TYPES OF BUSINESSES RESPONDING TO THE SURVEY

Of the businesses responding to the questionaire, 21 (20 percent) were retailing establishments, 38 (36.2 percent) were service providers, 8 (7.6 percent) were wholesalers, and 38 (36.2 percent) were manufacturers. The disproportionate number of manufacturers represented in the survey is the result of an attempt to encourage all manufacturing firms within the three counties to respond to the questionaire. The reason for this oversampling is that manufacturing firms usually employ a greater number of people than do the other three major types of businesses.

The businesses were also asked to identify their principal products or services in an open-ended question. The responding businesses represented a wide variety of industry classifications. The results of this question are summarized in Appendix B.

NUMBER OF EMPLOYEES

Over half of the respondents currently employ less than 10 people in their businesses. Approximately one-fourth reported employing 51-100 workers. Only 12 percent of the sample employs more than 100 workers.

The projected number of employees for firms in the sample were estimated by the respondents for one year, three years, and five years. The projected number of employees for next year was less than 10 for 50 percent of the sample. Firms projecting 11-50 employees next year made up 25 percent of the sample. However, firms projecting number of employees to be in the 51-100 range increased 5 percent over reported number of workers currently employed at the firm. The projections of the sample for the estimated number of workers to be employed in three years and in five years remained relatively stable. Based on the estimations of the respondents, it appears that the three county area will not experience a significant increase in the number of employees needed over the next five years. Any increase will come from the opening of new businesses in the area, such as the Texas Instruments plant scheduled to open in the Denton area within that time frame.

MAKE-UP OF THE CURRENT WORKFORCE

Respondents were asked to indicate the approximate number of employees currently working in several occupational categories. The responses to this question are depicted below.

Professional Employees:

51.4 percent (54) have less than 10 professional employees

4.8 percent (5) have 11-50 professional employees

One business has 201-250 professional employees

42.9 percent (45) report having no professional employees

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Managerial Employees:

67.6 percent (71) have less than 10 managerial employees

12.4 percent (13) have 11-50 managerial employees

One business has 201-250 managerial employees

19 percent (20) report having no managerial employees

Sales Employees:

53.3 percent (56) have less than 10 salespeople

5.7 percent (6) have 11-50 salespeople

One business has 51-100 salespeople

40 percent (42) report having no salespeople

Clerical Employees:

67.6 percent (71) have less than 10 clerical workers

6.7 percent (7) have 11-50 clerical workers

2.9 percent (3) have 51-100 clerical workers

21 percent (22) report having no clerical workers

Two businesses report having more than 100 clerical workers

Skilled Employees:

56.2 percent (59) have less than 10 skilled employees

17.1 percent (18) have 11-50 skilled employees

Three businesses report having more than 100 skilled employees

23.8 percent (25) report having no skilled employees

Unskilled Employees:

31.4 percent (33) have less than 10 unskilled employees

18.1 percent (19) have 11-50 unskilled employees

3.8 percent (4) have 51-100 unskilled employees

Three businessess report having more than 100 unskilled employees

43.8 percent (46) report having no unskilled employees

TRAINING OF EMPLOYEES

The respondents were asked whether they felt the workers receive sufficient training to meet the business's needs. Sixty respondents (57.1 percent) answered that the employees do get sufficient training. Forty respondents answered that the training is not sufficient.

The businesses who responded "no" to this question were asked to elaborate on what their major training needs are at this time. The results of this open-ended question are summarized as follows:

Data Processing
Business Math
Sales and Marketing
Personal Management
Meat Market Management
Produce Management
Retail Management
Working with Hazardous Products (LPG)
Checkers, Store Clerks, Package Clerks
Nursing Aides
Welders
Machinists
Drafting
Mechanics

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Typing
Adding Machine
Word Processing
Spelling
Letter Writing
Phone Courtesy
Typesetting/Printing Skills
Purchasing
Computer Skills
Electricity Knowledge
Solid-state Electronics
Satellite Systems
Tools
Reading Blueprints
Bookkeeping
Filing
Craft Skills
Silk Screening
Sewing
Early Childhood Educational Training
Automotive Electronics
Design (drafting)
Fiberglass Repair

The skills mentioned most frequently include: 1) sales and marketing, 2) machinists, 3) welders, 4) handling of hazardous materials (LPG), 5) computer skills, 6) word processing, 7) retail-related managememt skills, and 8) various types of electronic skills.

In addition to specific job skills mentioned, the respondents also named general business skills which are lacking in current employees. These skills include honesty, promptness, customer relations, time management, and good attitude. These skills were mentioned by a significant number of the respondents.

The survey also asked if employees of the respondent's company require any special training. Eighty-five respondents

(81 percent) answered that special training is required. Only 17 respondents (16.2 percent) answered that none is required.

If respondents answered that special training is required in the previous question, they were then asked how this training is usually accomplished. Seventy-seven respondents (73.3 percent) reported that they accomplish this special training through on-the-job training. Only six respondents (5.7 percent) reported that they use vocational-technical training. Four companies use an in-house training department and three companies use other methods for special training.

EDUCATIONAL REQUIREMENTS FOR JOB CATEGORIES

The respondents were also asked to report the level of education required for each of the job categories in their company. The results of this question are summarized below.

Percentage of Job Category Requiring:

High School Equivalent:

Professional Employees	8.6%
Managerial Employees	14.3%
Salespeople	21.0%
Clerical Employees	45.7%
Skilled Employees	27.6%
Unskilled Employees	27.6%

Vocational-Technical Training:

Professional Employees	1.9%
Managerial Employees	2.9%
Salespeople	2.9%
Clerical Employees	2.9%
Skilled Employees	13.3%
Unskilled Employees	1.0%

Specialized Training:

Professional Employees	5.7%
Managerial Employees	15.2%
Salespeople	5.7%
Clerical Employees	9.5%
Skilled Employees	18.1%
Unskilled Employees	1.0%

Two-Year College Degree:

Professional Employees	1.9%
Managerial Employees	8.6%
Salespeople	4.8%
Clerical Employees	2.9%
Skilled Employees	0.0%
Unskilled Employess	0.0%

Four-Year College Degree:

Professional Employees	30.5%
Managerial Employees	18.1%
Salespeople	7.6%
Clerical Employees	1.0%
Skilled Employees	0.0%
Unskilled Employees	0.0%

No Educational Requirement:

Professional Employees	3.8%
Managerial Employees	6.7%
Salespeople	9.5%
Clerical Employees	10.5%
Skilled Employees	13.3%
Unskilled Employess	27.6%

Future Training Needs

The participants in the survey were asked if they anticipated needing workers who are either better of differently trained than current workers in the next two to three years. Seventy businessess (66.7 percent) responded negatively to this question. However, 31 businessess (29.5

percent) said that their human resource needs would change in the future.

The businessess which answered "yes" to this question were then asked to briefly describe the additional training needs anticipated. The responses to this question are summarized below:

Sales
Four-Year Degree
Computer Training
Irrigation Knowledge
Plant Knowledge (Botany)
Health Care Skills
Welding
Painting
Electrical Skills
Clerical Skills
Management Skills
Skilled Labor
Data Entry
Word Processing
Mechanical Ability
Knowledge of Chemicals
Steel Erection
Computer-Aided Drafting
Robotics
Specialized Crafts
Quality Control (SPC)
Jewelry-making
Automotive Electronics
Office Management
Electro-mechanical skills
Solid-State Electronics
Machine Operations
Automotive Mechanics

Those specific skills which were mentioned most frequently by respondents included: 1) sales, 2) computer-related skills, 3) welding, 4) management skills, 5) computer-aided drafting, 6) word processing, and 7) electronics.

In addition to specific job skills which will be in demand by employers in the future, several businessess also mentioned general skills which they feel are currently lacking in workers they employ. These skills include more overall education, good work ethic and attitude, good communicator (both written and oral), and human relations skills.

Provisions Made For Continuing Training/Education

The respondents were asked to identify the provisions which their companies make for employees pursuing training or development. The respondents were able to check all answers which applied. Only sixteen companies provide leave time, while 89 companies do not. Thirty-five companies (33.3 percent) provide tuition reimbursement, while 70 companies (66.7 percent) do not. Twelve companies report making other unspecified provisions. Forty-four companies (41.9 percent) report giving their employees no provisions for training and development.

Other Comments From the Respondents

The particpants in the survey were asked to make any comments concerning training of employees which had not been addressed by the questions in the survey. Usually, those responding to this type of question feel very strongly about the issue they express in their comment. The answers to this open-ended question are summarized below:

Surplus of trained employees in the area
Prefer to hire high school students and train them myself
Need good proof-readers
Need employees with a good work ethic
Welcome workshops to aid in on-the-job training
Need workers with people relation skills
Need more workers with management skills
Need workers who are motivated to work
Need workers who have computer training

Secondary Information Concerning the Local Job Market

In addition to the primary data collected in the survey, secondary information concerning the job market in the area was also collected. This secondary information gives a stronger indication of specific job skills which will be demanded by all employers in the North Texas Area.

The Texas Employment Commission Office in Denton was contacted concerning jobs which are in demand in this area. The job skills which are needed are summarized as follows:

Clerical Skills
Computer Operators
Data Processing
Fast Food Workers
Secretarial Skills (Typing 60wpm, Shorthand 80wpm)
Retail Clerks
Transportation and Public Utilities Occupations

Published sources were also consulted. One source was the AREA JOB OUTLOOK 1990. In this book, Denton County is included in the Dallas PMSA, while Cooke and Montaque Counties are included in the Sherman-Denison MSA. The jobs which are projected to be in demand by this source in these two metropolitan statistical areas are reproduced in Appendix C.

A second published source consulted was OCCUPATIONAL EMPLOYMENT: TEXAS METROPOLITAN STATISTICAL AREAS ANNUAL AVERAGE 1985 prepared by the Texas Employment Commission Economic Research and Analysis Department. The breakdown of the counties is the same as was presented in AREA JOB OUTLOOK 1990. The reproduction of this list is included in Appendix D.

The third source consulted was the JOB HUNTER'S GUIDE FOR NORTH CENTRAL TEXAS prepared by the Training Employment Development Division of the Texas Department of Community Affairs. In this booklet, Denton County is included in Region 1, Montague County is included in Region 3, and Cooke County is included in Region 4. The reproduction of the lists of jobs skills in demand in these three regions is presented in Appendix E. In addition, the general projections of the future of the job market in each of these regions is also presented.

The final source consulted was a supplement in the June 28, 1987 edition of THE DALLAS TIMES HERALD. This supplement was entitled COLLEGE MAGAZINE. One section of this supplement presented job opportunities and salaries which will be in demand in North Texas. These job skills are obtained from vocational programs and are presented in Appendix F.

```
V18 OUTSIDE SOURCES

Value              Value        Frequen-   Percent    Valid      Cum
Label                             cy                  Percent    Percent

  NOT
REPORTED             0            3           2.9        2.9        2.9
YES                  1           22          21.0       21.0       23.8
NO                   2           80          76.2       76.2      100.0
                                -----      -------    -------
          TOTAL                  105        100.0      100.0

Mean        1.733     Std Dev    .505       Minimum    0.0
Maximum     2.000

Valid Cases  105           Missing Cases  0
```

```
V19  FUTURE TRAINING

Value              Value        Frequen-   Percent    Valid      Cum
Label                             cy                  Percent    Percent

  NOT
REPORTED             0           23          21.9       21.9       21.9
YES                  1           36          34.3       34.3       56.2
NO                   2           45          42.9       42.9       99.0
                                -----      -------    -------
          TOTAL                  104        100.0      100.0

Mean        1.229     Std Dev    .800       Minimum    0.0
Maximum     3.000

Valid Cases    105         Missing Cases  0
```

```
V20  PLACE PREFERENCE

Value              Value        Frequen-   Percent    Valid      Cum
Label                             cy                  Percent    Percent

  NOT
REPORTED             0            57         54.3       54.3       54.3
ON-SITE              1            30         28.6       28.6       82.9
OTHER                2             6          5.7        5.7       88.6
COLLEGE CAMPUS       3            12         11.4       11.4      100.0
                                -------    -------    -------
          TOTAL                  105        100.0      100.0

Mean        .743      Std Dev    1.000              Minimum    0.0
Maximum    3.000

Valid Cases     105        Missing Cases   0




V21  LEAVE TIME

Value              Value        Frequen-   Percent    Valid      Cum
Label                             cy                  Percent    Percent

  NOT
AVAILABLE            0            89         84.8       84.8       84.8
AVAILABLE            1            16         15.2       15.2      100.0
                                -------    -------    -------
          TOTAL                  105        100.0      100.0

Mean        .152      Std Dev     .361              Minimum    0.0
Maximum    1.000

Valid Cases     105        Missing Cases   0
```

```
V22

Value            Value      Frequen-   Percent    Valid     Cum
Label                         cy                  Percent   Percent

  NOT
AVAILABLE          0          70        66.7       66.7      66.7
AVAILABLE          1          35        33.3       33.3     100.0
                            -------   -------    -------
           TOTAL             105       100.0      100.0

Mean        .333      Std Dev    .474             Minimum    0.0
Maximum    1.000

Valid Cases     105        Missing Cases   0


V23  OTHER

Value            Value      Frequen-   Percent    Valid     Cum
Label                         cy                  Percent   Percent

  NOT
AVAILABLE          0          93        88.6       88.6      88.6
AVAILABLE          1          12        11.4       11.4     100.0
                            -------   -------    -------
           TOTAL             105       100.0      100.0

Mean        .114      Std Dev    .320             Minimum    0.0
Maximum    1.000

Valid Cases     105        Missing Cases   0


V24  NO PROVISIONS

Value            Value      Frequen-   Percent    Valid     Cum
Label                         cy                  Percent   Percent

  NOT
AVAILABLE          0          61        58.1       58.1      58.1
AVAILABLE          1          44        41.9       41.9     100.0
                            -------   -------    -------
           TOTAL             105       100.0      100.0

Mean        .419      Std Dev    .496             Minimum    0.0
```

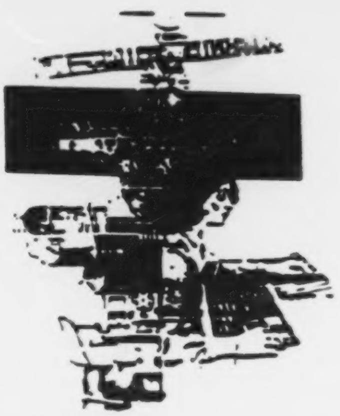
GAINESVILLE HIGH SCHOOL
STUDENTS PRE-ENROLLED
IN

	DC/AC	TECHNICAL ALGEBRA
1.	Kriss Boaz	David Chartrand
2.	Zane Chartrand	William Englebright
3.	John Fish	Refugia Garcia
4.	Vernon Gilbreath	Vernon Gilbreath
5.	Cory Hunter	Craig Huneycutt
6.	Chris Jones	Cory Hunter
7.	Tim Moore	Alex McElreath
8.	George Roberts	George Roberts
9.	Michael Thomas	Trent Royal
10.	Chris Thompson	Chris Thompson
11.	Carl Webb	Tony Winham
12.	Tony Winham	Bryan Woody

A high school counselor will be working thru June, 1989 to accommodate any other students desiring to enroll in the program.

STUDENT SURVEY

A survey to determine potential interest in an electronics training program was presented to the public in area newspapers on April 26, 27, and 28, 1989. Within one week, 48 individuals responded positively to the survey. Numerous inquiries via telephone and personal contact have come from individuals and public school personnel. It is anticipated that a minimum of 24 full-time students will enroll for the Fall Semester. Inquiries from local industries point to heavy demand for part-time evening students. Andrews Corporation of Denton has asked for eight slots for their personnel if they can be accommodated during evening hours.



Interested in preparing for a career offering excellent opportunities in an exciting professional field, with growth potential extending into the next century?

Cooke County College is developing 2-year, Associate of Applied Science Degree programs to train

ELECTRONICS ENGINEERING TECHNICIANS & ELECTRONICS TECHNICIANS

to begin admitting students in the 1989 Fall Semester*.

Selected courses in the two degree plans will be offered to Gainesville High School students, with credit transferable to Cooke County College under an articulation agreement**.

Please help us measure potential student interest in the programs by supplying the information asked for below and returning it by Wedesday, May 3, 1989, to: **Whitten G. Williams, Dean of Administrative Services, Cooke County College, 1525 W. California, Gainesville, TX 76240.** Thank you for your interest and assistance. We will keep those who respond informed of the status of the program and how they can get enrolled.

* Pending formal approval by the Texas Higher Education Coordinating Board

* Pending formal approval by the Texas Education Agency

Electronics Technicians are specially trained paraprofessionals prepared to work in a broad range of electronics-related career fields including manufacturing, installation, maintenance & repair, servicing, technical sales, technical writing, and research & development.

Yes. I'm interested in Cooke County College's proposed Associate Degree programs in electronics. My primary interest is in:

☐ Electronics Engineering Technology
☐ Electronics Technology
☐ I am enrolled at Gainesville High School.
☐ I am enrolled at another high school (please name): ____________________
☐ I am an adult not enrolled at any high school.
☐ Please send me additional information about the programs, including information on admission requirements and how to enroll.

NAME ______________________________ PHONE ____________

MAILING ADDRESS ______________________________

Cooke County College is an Equal Opportunity/Handicapped/Affirmative Action employer and service provider.

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A STUDENT SURVEY
A MODEL 2 + 2 ELECTRONICS
PROGRAM DEVELOPMENT PROJECT

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GAINESVILLE ISD/COOKE COUNTY COLLEGE
ELECTRONICS 2 + 2 PROGRAM
STUDENT ASSESSMENT

FINAL REPORT

SUBMITTED BY

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MAY 8. 1989

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INTRODUCTION

The basic philosophy of any well-designed assessment process should be one of screening students into a program as opposed to screening them out. Assessment as a process is designed to insure that the right students are matched with the right programs. If assessment is accurate, then those students going into any given subject will have demonstrated the skills, aptitudes, and interests requisite for success in that subject.

This report will serve as the author's recommendation for such an assessment process in the area of electronics. Electronics is a highly technical discipline that requires potential students to demonstrate mastery of certain cognitive skills; to possess certain aptitudes, interests, and attitudes; and to demonstrate certain levels of skills in the sensory/motor area. If prospective students meet the assessment standards, their chances for success in the area are greatly enhanced. If they do not, then obviously their potential for failure is great.

The assessment system recommended in this document is, thus, an attempt to prevent student failure. Adherence to its suggestions will provide students for the new electronics program that have demonstrated their potential for success. Although success can never be guaranteed, this process will most certainly increase the probability.

READING ASSESSMENT

The first step in the assessment process was to establish a reading level that must be demonstrated by the students wishing to enroll in the Electronics Program. The reading level was established by conducting a readability measure on each of the textbooks that have been identified for use in the program.

Each text was examined in a minimum of eight places to determine its average level of readability. In addition, the range of readability was also plotted. A computerized form of the Bormuth Readability Index was used for this process. The results for all texts are included in Appendix A.

As a result of the readability examination, the following standard is recommended as the minimum reading level that a student should demonstrate upon initial entrance into the program:

READING LEVEL - 7TH GRADE

This standard is recommended for both secondary and post-secondary students, since textbooks for all students will be identical.

It is further recommended that the TEAMS Test be used at Gainesville High School to demonstrate this standard; and that the Nelson-Denny be used at Cooke County College.

MATH ASSESSMENT

Being a highly technical area, Electronics requires that potential students enter the program with a certain level of math. The math standards listed below are a result of the math courses required in the Electronics Program.

HIGH SCHOOL MATH LEVEL -	SUCCESSFUL COMPLETION OF THE PRE-ALGEBRA COURSE
COLLEGE MATH LEVEL -	ELIGIBLE TO ENTER CP 1043, DEVELOPMENT ALGEBRA

It is further recommended that the math level at the secondary level be determined by transcript evaluation and at the post-secondary level by the Math Placement Test.

SENSORY/MOTOR ASSESSMENT

Because of the nature of the discipline. Electronics requires a level of certain psychomotor skill that may not be common to other areas of study. If the student is to find success in the program, these levels of skill mastery must be present. The following psychomotor standards ar recommended as the minimum levels students should demonstrate upon entrance into the program Levels are taken from the Labor Department's Handbook for Analyzing Jobs published in 1972.

MOTOR COORDINATION	LEVEL 3	Defined as the ability to make movement quickly and accurately.
FINGER DEXTERITY	LEVEL 3	Defined as the ability to manipulate small objects rapidly and accurately.
MANUAL DEXTERITY	LEVEL 4	Defined as the ability to move hands easily and skillfully.
EYE-HAND-FOOT COORDINATION	LEVEL 5	Defined as the ability to use hands and feet together in a skillful manner.
COLOR DISCRIMINATION	LEVEL 4	Defined as the ability to match or discriminate between colors by sight or from memory.

It is recommended that these standards be the same for both secondary and post-secondary students since psychomotor requirements will be identical for both programs.

It is further recommended that a criterion referenced test be used for measuring this standard. The author recommends the use of the MESA or some newer generation of same. MESA is an acronym for Microcomputer Evaluation and Screening Assessment. It is a commercially available instrument from Valpar International Corporation located in Tucson, Arizona. A MESA Profile of t Electronics program is included in Appendix B for use with the system.

If it is not possible to secure an assessment instrument such as MESA, then an acceptable substitute would be the norm-referenced system known as GATB [General Aptitude Test Battery]. has been administered in the past by Gainesville High School and could probably be done again. Mr. Mike Martin at the high school is licensed to administer the GATB. If the GATB is used, a decision have to be made concerning a cut-off percentile required for students entering the program.

Regardless of the instrument chosen, it should be made available to both secondary and post-secondary students. Each will need to demonstrate mastery of the required psycnomotor standard

APTITUDE AND INTEREST ASSESSMENT

It is recommended that each potential secondary and post-secondary student be assessed general aptitudes and interests prior to being admitted to the program. No standard is suggested

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APTITUDE AND INTEREST ASSESSMENT

It is recommended that each potential secondary and post-secondary student be assessed for general aptitudes and interests prior to being admitted to the program. No standard is suggested in this area, although it is highly recommended that each prospective student show a general aptitude for and interest in activities of a scientific and technical area.

It is further recommended that the CAPS [Career Ability Placement Survey] and COPS [Copsystem Interest Inventory] be used for this component of the assessment. Both are currently available and in use at Gainesville High School and Cooke County College.

INTERVIEW

The final component of student assessment that is recommended is individual student interviews conducted by the ELectronics teachers. These are necessary so that an assessment may be made of each individual student's attitude toward the program. Information of an affective nature is just as important to the overall selection process as the cognitive and psychomotor assessment previously recommended.

The author's recommendation is that a structured interview process be used where one list of questions is developed and asked of all potential students. A few sample questions follow for consideration.

1. What is your occupational objective?
2. How will the Electronics Program help you to achieve your occupational objective?
3. What specific part of electronics attracts you the most?
4. Do you have any past experience in electronics? [employment or recreation/hobby].
5. What do you think the average electronics class will be like?
6. Do you like math and science type courses? Why?
7. What kinds of tools and equipment have you used in the past?
8. Do you like to try and solve problems?
9. What do you like to do in your spare time?
10. Assume that 11 students want to enroll in the Electronics Program and that we can only take 10. Convince me that you should be one of the 10 admitted.

In addition to a list of interview questions, the teachers should also have the results of all previous assessment steps that have been completed.

ASSESSMENT PROCEDURE

The assessment procedure for entrance into the Electronics 2 + 2 Program should take place as follows:

Step 1 - Student declares an interest. [All students go to next step.]

Step 2 - The student's transcript is evaluated to insure that the math requirement has been met. [Students meeting requirement go to next step.]

Step 3 - The student's record is evaluated to insure that the 7th grade reading level requirement has been met. [Students meeting requirement go to next step.]

Step 4 - Aptitude and Interest Tests are administered. [Students not exhibiting appropriate aptitude or interest should receive counseling before going to the next step. All others go immediately to next step.]

Step 5 - MESA or GATB Test is administered. [Students who meet set standard go to next step.]

Step 6 - Each potential student is interviewed. [All students go to next step.]

Step 7 - Program selection decision is made. [Students meeting assessment standards are admitted to the Electronics Program.]

Note: Some sort of tracking form should be used to keep track of students as they progress through the various assessment steps. An example form is included in Appendix C.

CONCLUSION

Assessment as a means of selecting the right student for the right program is not always an easy task. By its very nature, assessment adds an extra time component to the process of placing students into programs. Because of the extra time required, it is often a much debated issue. Time is not the issue, however; the issue is helping a student make a wise career choice. If that factor is remembered, then the time factor becomes an issue of little consequence.

What is being proposed here is a reasonably simple system for assessing the suitability of students for success in the ELectronics Program. Although it will add a measure of time to the scheduling process, adherence to its various facets will most certainly aid students in appropriate career choices.

APPENDICES

APPENDIX A

TEXTBOOK READABILITY

ELECTRONIC TEXTS' READABILITY

	AVERAGE	RANGE
TECHNICAL MATH I	6.5	4.7-8.2
TECHNICAL MATH II	5.2	2.6-8.8
INTRODUCTORY ELECTRONIC DEVICES AND CIRCUITS	5.3	3.4-6.2
INTRODUCTORY DC/AC ELECTRONICS	7.2	2.1-10.
ELECTRONIC CIRCUITS	6.8	4.6-10.
DC ELECTRONICS	7.3	6.5-8.2
AC ELECTRONICS	7.2	4.8-10.

B

MESA PROFILE

Valpar Comprehensive Access Profile

SCHOOL ACCESS PROFILE INFORMATION

Electronics
COURSE NAME

DEPARTMENT CREDITS

COURSE DESCRIPTION Gainesville H.S.
Cooke County C.C.

18/89
INSTRUCTOR

JOB/EMPLOYER ACCESS PROFILE INFORMATION

TITLE

DESCRIPTION

COMPANY NAME

ADDRESS

STATE ZIP CODE ( ) PHONE NUMBER

CONTACT PERSON

The Valpar Comprehensive Access Profile is an integral part of the Valpar Micro-computer Evaluation and Screening Assessment (MESA) System. The Profile is used to compare the results of the assessment to criteria established for success in a course of study, or training program.

In effect, when you complete the Access Profile, you have recorded both the significant factors, and the level at which a person must possess those factors, correlate directly to success in your specific situation.

In general, the Access Profile Program fits into the vocational evaluation as follows:

The Micro-Computer Evaluation and Screening Assessment (MESA) gathers information on over sixty (60) factors related to work/jobs.

The Dictionary of Occupational Titles analyzes and rates over twenty (20) factors directly related to work/jobs. These factors combine to make the Worker Qualifications Profile for specific jobs.

The results of the MESA are analyzed and related directly to the Worker Qualifications Profile for specific jobs.

The Valpar Comprehensive Access Profile analyzes the factors directly related to your specific situation and relates them to the factors on the D.O.T. Worker Qualifications Profile.

You can now compare the assessment results of any person interested in your situation with the criteria you have established. The person will match all of the criteria, some of the criteria, or none of the criteria. The evaluator can use this information to assist the individual in making valid decisions regarding vocational and/or educational choices. In this respect, you are now part of the vocational evaluation team. Your input regarding your specific situation becomes the final element in the evaluation process.

Completing the Access Profile is not difficult. First review the twenty-three (23) major areas and decide which level for each area is applicable to your situation. Circle that level. Your response is entered into the computer and an Access Profile summary report can then be printed using your unique, specialized criteria.

DATA. The ability to use information, ideas, symbols, and concepts. Circle the number of the phrase which best describes the level at which the person must function in your situation.

LEVEL
0 Synthesizing - analyzing data to discover new facts or develop new concepts (creating, designing, conducting research).
1 Coordinating - using data to determine actions or sequences of action to be taken (planning, directing, organizing).
2 Analyzing - examining data to discover alternatives (examine, review, study).
3 Compiling - gathering, arranging, or classifying data (interview, catalog, collect).
[✓ 4] Computing - performing arithmetic operations (calculate, quote).
5 Copying - transcribe data from one place to another (enter, record, type).
6 Comparing - judge observable characteristics of things (sort, inspect, select).

PEOPLE. The ability to interact with people. Circle the number of the phrase which best describes the level at which the person must function in your situation.

LEVEL
0 Mentoring - dealing with individuals at the deepest level (counsel, advise, guide).
1 Negotiating - exchanging ideas to create policy or solve problems (arrange, confer, negotiate).
2 Instructing - transmit knowledge and/or skills to others (teach, train, coach).
3 Supervising - controlling or coordinating the activities of others (assign, direct, evaluate).
4 Diverting - amusing others (perform, act, sing).
[✓ 5] Persuading - influencing the behavior or ideas of others (sell, solicit, promote).
6 Speaking/Signaling - exchanging information by voice or signal (interview, inform, explain).
7 Serving - attending to the immediate needs of others (feed, accompany, deliver).
8 Taking Instructions/Helping - following directions from others (help, assist, respond).

MESA.

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[illegible]

Circle the number of the position which best describes the level at which the person must function in your situation.

LEVEL

0 **Setting Up** - Installing or repairing machine (repair, align)

1 Precision working - skillful use of hands or tools to produce work meeting specific standards (layout, polish, diagram).

2 Operating/Controlling - directing the functions of machines and equipment (attach, position, regulate)

3 Driving/Operating - continuous control of a machine which must be guided (steer, pilot, drive).

4 Manipulating - to move, guide, or place materials (trim, scrape, mix).

5 Tending - starting, stopping, or observing machines (turn valves, adjust blowers).

6 Feeding/Offbearing - placing or removing materials from automatic machines (pick up, hang, dump).

[✓ 7] Handling - move or carry objects or materials (dig, scrub, carry)

GUIDE TO OCCUPATIONAL EXPLORATION (GOE). Circle one vocational interest cluster which best represents your specific situation.

01 Artistic

02 Scientific

03 Plants & Animals

04 Protective

05 Mechanical

[✓ 06] Industrial (Production)

07 Industrial (Support)

08 Selling

09 Accommodating

10 Humanitarian

11 Leading/Influence

12 Sports

PHYSICAL DEMANDS. Circle the physical capacities required of the individuals in order for them to perform in your situation. Circle a YES or NO for each item.

1) [✓ YES] NO Sedentary - lifting 10 pounds maximum and occasionally lifting and/or carrying lighter objects.

[✓ YES] NO Light Work - lifting and/or carrying 10 pounds maximum

[✓ YES] NO Medium Work - lifting and/or carrying 25 pounds maximum

YES [✓ NO] Heavy Work - lifting and/or carrying 50 pounds maximum

YES [✓ NO] Very Heavy Work - lifting and/or carrying 50 pounds or more.

2) YES [✓ NO] Climbing - ascending or descending ladders, scaffolding, etc.

YES [✓ NO] Balancing - maintaining body equilibrium on slippery or erratically moving surfaces.

3) YES [✓ NO] Stooping, Kneeling, Crouching, and/or Crawling

4) [✓ YES] NO Reaching, Handling, Fingering, and/or Feeling.

5) YES NO Talking.

YES NO Hearing

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SPECIFIC VOCATIONAL PREPARATION (SVP). Circle the vocational training time required to master entry-level skills for your situation. Circle ONLY ONE.

9 Over 10 years

8 4 to 10 years

[✓ 7] 2 to 4 years

6 1 to 2 years.

5 6 months to 1 year

4 3 months to 6 months.

3 30 days to 3 months.

2 Beyond short demonstration and up to 30 days

1 Short demonstration only

APTITUDES. Rate the level required of a person in your situation. Circle one level (from 1 to 4 or 1 to 5, with 1 being the highest level) for each of the aptitudes in this section. Rate the situation only on the required level of the specific aptitude for each section.

LEVEL G - INTELLIGENCE: General learning ability required

1 Conduct research, diagnose diseases, write plays, or perform engineering design.

2 Perform accounting, manage a business, perform scientific lab tests, or repair electronic equipment.

[✓ 3] Perform secretarial tasks, nurse sick individuals, operate telephone switchboard, or assemble electronic equipment.

4 Operate sewing machine, perform mechanical assembly, drive forklift, or sort laundry.

LEVEL V - VERBAL: The ability to use and understand language.

1 Read complex technical material, write complex editorials, present legal arguments, or review literary materials.

2 Read business material, teach at secondary level or higher, interview job applicants, or understand contracts

[✓ 3] Proofread printed copy, type letters and reports, perform on-the-job training, or conduct tours.

4 Perform retail sales, read recipes, understand oral or written assembly instructions.

5 No verbal aptitude required

LEVEL N - NUMERICAL: The ability to perform math quickly and accurately

1 Use Algebra, calculus, analytical geometry, or specialized engineering math formulas.

2 Perform business math, do accounting, perform architectural design, or solve standard formulas.

[✓ 3] Compute costs of materials, measure parts using micrometers, etc., perform shop math, or measure chemicals.

4 Perform simple measurements, use recipes, post business figures, or count and record items.

5 No numerical aptitude required

LEVEL S - SPATIAL: Ability to think visually about geometric forms and to use diagrams.

1 Read x-rays, design offices and homes, or draw illustrations for publications.

2 Read blueprints and circuit diagrams, follow sewing patterns, or plan equipment layout.

3 Operate cranes, adjust printing press alignment, install electrical wiring, or pack cargo areas.

[✓ 4] Set up looms, inspect mechanical assemblies, press clothing, or operate forklift.

5 No spatial aptitude required

LEVEL E - EYE-HAND-FOOT COORDINATION: Ability to use hands and feet together in a skillful manner.

1 Performing gymnastics, piloting aircraft, or teaching sports.

2 Operate cranes, perform steel work above ground, or climb and adjust antenna towers.

3 Ride horseback, drive motor vehicles, serve food, or service light towers.

4 Operate pressing machine, use foot-operated transcribing machine, or teach golf.

[✓ 5] Eye-hand-foot coordination not required.

LEVEL C - COLOR DISCRIMINATION: Ability to match or discriminate between colors by sight or from memory.

1 Perform commercial art, apply stage make-up, perform surgery, or reweave expensive oriental rugs.

2 Mix house paint to color, perform interior design, color women's hair, or perform taxidermy.

3 Grade and sort leather, sort produce, select fabric for upholstery repair, or sell yard goods.

[✓ 4] Sort fish, create designs in colored tile, or perform meat cutting.

5 Color discrimination not required.

INTERESTS: Circle up to three (3) Interest Factors which best describe the interests a person should have to be successful in your situation.

The Interest Factors are as follows:

1a.	A preference for activities dealing with things and objects.	vs.	1b.	A preference for activities concerned with the communication of data.
2a.	A preference for activities involving business contact with people.	vs.	[✓ 2b.]	A preference for activities of a scientific and technical nature.
3a.	A preference for activities of a routine, concrete, organized nature.	vs.	3b.	A preference for activities of an abstract and creative nature.
4a.	A preference for working for the presumed good of people.	vs.	[✓ 4b.]	A preference for activities that are carried on in relation to processes, machines, and techniques.
5a.	A preference for activities resulting in prestige or the esteem of others.	vs.	[✓ 5b.]	A preference for activities resulting in tangible, productive satisfaction.

Rank the Interest/s circled by writing your choice/s in the appropriate space

2B 1st priority

4B 2nd priority (optional)

5B 3rd priority (optional)

TEMPERAMENTS: Circle those temperaments which must be present for a person to succeed in the position in question. Choose all that apply in a significant way.

D Responsible for the direction, control, or planning of an activity. Necessary in engineers, managers, teachers, advisors, and skilled technicians.

F Interpreting feelings or ideas for others. Necessary in actors, artists, critics, musicians, etc.

I The ability to convince, redirect, or influence others. Necessary in sales, negotiating, teaching, etc.

J Ability to make decisions based on personal judgement. Necessary in cooking, police work, lighting design, etc.

[✓ M] Ability to make decisions based on verifiable criteria. Necessary in science, medicine, business management, etc.

[✓ P] Ability to deal effectively with people. Necessary in interviewing, sales, personnel management, etc.

[✓ R] Ability to perform repetitive work on a continuous basis. Necessary in clerical work, production assembly, machine tending, etc.

S Ability to perform well in stressful situations. Necessary in surgical medicine, law enforcement, air traffic control, etc.

[✓ T] Ability to produce work to precise tolerances or standards. Necessary in pharmacy, navigation, quality control testing, etc.

V Ability to perform a wide variety of different types of tasks without the variety itself causing a loss of efficiency. Necessary in secretarial work, teaching, sales, mechanical repair, etc.

INSTRUCTION FOLLOWING: Circle the level at which a person must function to be successful in your situation.

LEVEL

1 Can initiate the thought or study required to follow through with an assigned task or series or tasks.

2 Can follow both written and verbal instructions that require individual thought and/or study to complete the task or a series of tasks.

[✓ 3] Can follow both written or verbal instructions that are precise and only address one or two tasks at a time.

4 Can follow brief, one or two-step instructions given verbally for a sustained period of time; a day or when the task is finished.

5 Instruction following is not required.

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WORK CONDITIONS. Circle the description of the environmental conditions for which the individual must adjust in your situation YES or NO for each item.

1) [✓ YES] NO Inside - a major portion of the work is done inside
YES [✓ NO] Outside - a major portion of the work is done outside.
YES [✓ NO] Both - the individual must work both inside and outside.
2) YES [✓ NO] Extreme Cold - extremes with or without temperature changes.
3) YES [✓ NO] Extreme Heat - extremes with or without temperature changes.
4) YES [✓ NO] Wet and/or Humid - sufficiently high to cause marked body discomfort.
5) [✓ YES] NO Noise and/or Vibrations - cause marked distraction, possible hearing loss, and/or a strain on the body
6) [✓ YES] NO Hazards - situations in which there is danger to life, health, or bodily harm.
7) [✓ YES] NO Atmospheric Conditions - affects respiration or the skin (fumes, odors, dust, mist, gas, poor ventilation, etc.).

GED: Rate the level required of a person in the position under consideration. Circle only one level for each area.

LEVEL	Reasoning Development Required
6	Apply logical or scientific thought to deal with a variety of abstract concepts (design, arbitrate, interpret).
5	Apply logical or scientific thought to collect data or understand technical instructions (diagnose, evaluate, train).
[✓ 4]	Apply vocational or business principles to solve practical problems (plan, inspect, record).
3	Apply common sense to problems in standardized situations and follow written or diagramatic instructions (operate, prepare, adjust).
2	Apply common sense to deal with concrete problems and follow detailed but uninvolved instructions (deliver, guard, assist).
1	Apply common sense to carry out simple one or two-step instructions (sort, tend, pack).

LEVEL	Math Development Required
6	Advanced calculus, complex statistics.
5	Algebra (quadratics), analytical geometry, simple statistics.
[✓ 4]	Basic algebra, plane geometry, and shop math
3	Calculate variables and use formulas to determine area or volume
2	Add, subtract, multiply, and divide; calculate money
1	Add and subtract two-digit numbers; know basic units of measurement; make change under one dollar.

LEVEL	Language Development Required
6	Edit, teach, conduct research
5	Read literature and scientific or legal documents; write novels, manuals, or songs; speak effectively in public
4	Read novels, newspapers; write business letters, reports; discuss and debate.
[✓ 3]	Read novels, magazines, shop instructions; write essays with proper spelling, punctuation; speak to groups using correct English
2	Read adventure stories and comic books; write full sentences in cursive style,

LEVEL	P - FORM PERCEPTION Ability to perceive detail in objects and make visual comparisons.
1	Perceive grain structure within crystals or compare microscopic samples using microscope.
2	Compare production items to blueprints, perform commercial photography, or read and write shorthand.
3	Grade vegetable products, inspect watches and clocks, or perform meat cutting.
[✓ 4]	Buff or polish production parts, pack produce, inspect furniture, or perform welding.
5	No form perception required.

LEVEL	Q - CLERICAL PERCEPTION Ability to quickly and accurately perceive words and numbers.
1	Proofread printed material, perform complex scientific calculations, or create flow charts from tabular data
2	Type letters and reports, post accounting data, or compute payrolls.
3	Operate switchboard, read blueprints, operate cash register, or cook from recipes.
[✓ 4]	Read measuring instruments, gauges, and meters, or sort mail
5	No clerical perception required.

LEVEL	K - MOTOR COORDINATION Ability to make coordinated movements quickly and accurately.
1	No illustration
2	"Touch" typing, operate cash register, sketching and drawing, or hair-cutting and styling.
[✓ 3]	Perform mechanical assembly, operate forklift, sort agricultural products, or plaster walls.
4	Perform garment pressing, do hand sewing, pick produce, or sweep and mop floors.
5	Motor coordination not required.

LEVEL	F - FINGER DEXTERITY: Ability to manipulate small objects rapidly and accurately
1	Play musical instrument professionally or perform surgery
2	Repair watches, perform sleight of hand, perform engraving, or assemble electronic prototypes.
[✓ 3]	Perform architectural drawing, cut hair, take shorthand, or perform electrical wiring.
4	Assemble bakery goods, stock shelves, perform hand sewing, or operate machine control panels.
5	Finger dexterity not required.

LEVEL	M - MANUAL DEXTERITY Ability to move hands easily and skillfully
1	No illustration.
2	Professional juggling, professional violinist, performing instrument calibration, or production line soldering
3	Distributing mail, threading and operating sewing machine, or cutting hair
[✓ 4]	Picking produce, repairing furniture, performing plumbing, or electrical repairs.
5	Manual dexterity not required

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APPENDIX C

SAMPLE ASSESSMENT TRACKING FORM

ELECTRONICS 2 + 2 PROGRAM

Assessment Tracking Form

Student Name:____ Date_________

Student I.D. Number:______________________ School________________

___Accepted

___Not Accepted

	Completion Date	Met Standard Yes	Met Standard No	Comments
MATH				
READING				
APTITUDE & INTEREST				
SENSORY/MOTOR				
INTERVIEW				

GAINESVILLE HIGH SCHOOL
IMPLEMENTATION, TRACKING AND FOLLOW-UP

Courses available to sophomores:

Technical Algebra	1 credit

Courses available to juniors and seniors:

Technical Algebra	1 credit
Technical Trigonometry	1 credit
DC Circuit Analysis	1/2 credit
AC Circuit Analysis	1/2 credit

Courses available to seniors:

Technical Trigonometry	1 credit
Solid State Devices	1 credit

GAINESVILLE HIGH SCHOOL

COURSE DESCRIPTIONS

NEW COURSES

DC CIRCUIT ANALYSIS **1/2 Credit**

A competency based course in DC circuits which includes theory and applications of OHM's law. Kirchhoff's laws. Millman's laws. and network theorems relative to the distribution of DC current. resistance. voltage and power in series parallel resistive circuits. Component identification and specifications of conductors. insulators and resistors will be stressed along with the use of DC test instruments.

AC CIRCUIT ANALYSIS **1/2 Credit**

A competency based course in AC circuits which includes theory and applications in magnetism. inductance. capacitance. and L-C-R networks relative to the distribution of AC current. impedance. voltage and power in series. Parallel L-C-R circuits. Particular emphasis will be placed on the effects of frequency on transformer filters and resonant circuits. Component identification and specifications will be stressed along with the use of DC and AC instruments.

SOLID STATE DEVICES AND ANALOG CIRCUITS **1 Credit**

A competency based course in discrete and integrated solid state current and voltage controlling devices. which includes theory of atomic structure and applications in biasing of diodes. bipolar transistors. field effect transistors. and integrated circuits. Current and/or voltage amplification characteristics. isolation. feedback of each device as well as circuit configurations will be emphasized. Troubleshooting techniques will be developed as an integral requirement of this course as well as the continued use of test instruments.

GAINESVILLE HIGH SCHOOL

Selected List of Competencies and Rating Scales
For 2 + 2 Electronics Technology Project

The following list of terminal competencies represent appropriate elements of knowledge and skills applicable to the Electronic Technology.

The suggested rating scale is as follows:

4 Skilled - can function independently with no supervision
3 Moderately skilled - limited supervision required
2 Limited Skill - Requires close supervision
1 Exposure only - Close supervision and training
0 No exposure - No information and complete training required

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GAINESVILLE HIGH SCHOOL

A. *Terminal competencies for DC Circuit Analysis*

4	3	2	1	0		
☐	☐	☐	☐	☐	2	Describe the six methods of producing an EMF (friction, chemicalactivity, pressure, heat, magnetism, and light)
☐	☐	☐	☐	☐	3	Define volt, ampere, ohm and watt
☐	☐	☐	☐	☐	4	Identify insulators and conductors
☐	☐	☐	☐	☐	5	Read meter scales and interpolate meter readings
☐	☐	☐	☐	☐	6	Identify the ohmic value of resistors using the resistor color code.
☐	☐	☐	☐	☐	7	Identify basic electronic symbols
☐	☐	☐	☐	☐	8	Use Ohm's Law to solve problems
☐	☐	☐	☐	☐	9	Define direct current (DC)
☐	☐	☐	☐	☐	11	Define and explain capacitance and inductance
☐	☐	☐	☐	☐	13	Draw series DC circuits and solve for unknown values using Ohm's Law and Kirchhoff's Law.
☐	☐	☐	☐	☐	14	Draw parallel DC circuits and solve for unknowns using basic laws and circuits rules.
☐	☐	☐	☐	☐	15	Draw series parallel DC circuits and solve for unknowns using basic laws and circuit rules.

4	3	2	1	0		
☐	☐	☐	☐	☐	16	Measure volts with a voltmeter
☐	☐	☐	☐	☐	17	Use an ohmmeter to determine if the resistors are within tolerance according to color code
☐	☐	☐	☐	☐	18	Measure current with an ammeter
☐	☐	☐	☐	☐	19	Identify short circuits
☐	☐	☐	☐	☐	20	Identify open circuits
☐	☐	☐	☐	☐	21	Construct a series resistive circuit, measure voltage drops, current, resistance, and compute power.
☐	☐	☐	☐	☐	22	Construct a parallel circuit, measure voltage drops, current, resistance, and compute power.
☐	☐	☐	☐	☐	23	Construct a series parallel resistive circuit and measure voltage drops, current, resistance, and compute power.
☐	☐	☐	☐	☐	24	Test a fuse
☐	☐	☐	☐	☐	25	Test a switch
☐	☐	☐	☐	☐	26	Test a potentiometer

GAINESVILLE HIGH SCHOOL

B. Terminal competencies for AC Circuit Analysis

4	3	2	1	0		
☐	☐	☐	☐	☐	27	Construct and test RC and RL time constant circuits
☐	☐	☐	☐	☐	28	Define alternating current (AC) and explain its power distribution between primary and advantage over DC
☐	☐	☐	☐	☐	29	Explain terms related to frequency
☐	☐	☐	☐	☐	30	Describe inductance
☐	☐	☐	☐	☐	31	Describe inductive reactance
☐	☐	☐	☐	☐	32	Describe capacitance
☐	☐	☐	☐	☐	33	Describe capacitive reactance
☐	☐	☐	☐	☐	34	Describe how capacitive reactance and inductive reactance affects the voltage and current relationships in an AC circuit.
☐	☐	☐	☐	☐	35	Describe impedance in an AC circuit
☐	☐	☐	☐	☐	36	Calculate impedance, phase angle and power factor
☐	☐	☐	☐	☐	37	Describe the basic use and operation of AC test equipment; i.e., "O" scope, AC meters, frequency counters and signal generators.
☐	☐	☐	☐	☐	38	Calculate the turns, current, voltage, and power relationship for single phase transformers
☐	☐	☐	☐	☐	40	Measure AC volts with a voltmeter and differentiate between RMS and P/P and average voltage values

4	3	2	1	0		
☐	☐	☐	☐	☐	41	Operate a function generator
☐	☐	☐	☐	☐	42	Determine voltage and frequency with an oscilloscope
☐	☐	☐	☐	☐	44	Identify basic electronic symbols
☐	☐	☐	☐	☐	45	Locate and identify and open circuit
☐	☐	☐	☐	☐	46	Test a transformer circuit
☐	☐	☐	☐	☐	47	Construct a resonant circuit and determine resonant frequency and bandwidth
☐	☐	☐	☐	☐	48	Construct and test filter circuit
☐	☐	☐	☐	☐	49	Test and identify capacitors
☐	☐	☐	☐	☐	50	Construct series and parallel circuits. Measure voltage drops, current. Calculate impedance, phase angle, and power
☐	☐	☐	☐	☐	95	Use the oscilloscope to measure waveforms
☐	☐	☐	☐	☐	115	Use analog multimeters, digital multimeters, oscilloscopes, and frequency counters to analyze the operation of analog and pulse circuits.
☐	☐	☐	☐	☐	443	Calculate characteristic impedance and impedance matching of transmission lines.

GAINESVILLE HIGH SCHOOL

C. Terminal competencies for Solid State and Analog Circuits

4	3	2	1	0		
☐	☐	☐	☐	☐	71	State the difference between a conductor, an insulator, and semiconductor.
☐	☐	☐	☐	☐	72	Explain electron and hole flow theory in semiconductors and how they are affected by doping.
☐	☐	☐	☐	☐	73	Define the term "diode" and a brief description of its construction and operation.
☐	☐	☐	☐	☐	74	Explain how a diode can be used as a rectifier or a switch.
☐	☐	☐	☐	☐	75	Identify diodes by their symbols.
☐	☐	☐	☐	☐	76	Explain the procedure for testing semiconductor devices with an ohmmeter.
☐	☐	☐	☐	☐	77	Explain characteristic curves for germanium and silicon semiconductor diodes.
☐	☐	☐	☐	☐	78	Explain characteristic curves for zener diodes.
☐	☐	☐	☐	☐	79	Design shunt zener regulated circuits.
☐	☐	☐	☐	☐	80	List three different transistor amplifier configurations, bipolar and FET, and explain their operation.
☐	☐	☐	☐	☐	81	Identify the different types of bipolar and FET transistor symbols.
☐	☐	☐	☐	☐	82	Define beta, alpha, and transconductance.
☐	☐	☐	☐	☐	86	Explain procedure and precautions for replacing semiconductor devices.

4	3	2	1	0		
☐	☐	☐	☐	☐	88	Test typical germanium and silicon semiconductor diodes.
☐	☐	☐	☐	☐	89	Construct and test diode rectifier circuits.
☐	☐	☐	☐	☐	92	Construct and test bipolar transistor and amplifier circuits.
☐	☐	☐	☐	☐	93	Construct a typical junction FET amplifier and determine its transconductance.
☐	☐	☐	☐	☐	94	Construct a typical insulated gate FET amplifier and test its operation.
☐	☐	☐	☐	☐	99	Test and replace solid state diodes.
☐	☐	☐	☐	☐	100	Test and replace transistors.
☐	☐	☐	☐	☐	102	Describe the characteristics fo basic transistor amplifier circuits and explain their operation.
☐	☐	☐	☐	☐	103	Design basic transistor amplifier circuits.
☐	☐	☐	☐	☐	109	Construct a basic common emitter amplifier.
☐	☐	☐	☐	☐	110	Construct a basic common base amplifier.
☐	☐	☐	☐	☐	111.	Construct a basic common collector amplifier.
☐	☐	☐	☐	☐	505	Troubleshot a discrete component power module.
☐	☐	☐	☐	☐	506	Explain the function of thyractors.

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ARTICULATION AGREEMENT
GAINESVILLE INDEPENDENT SCHOOL DISTRICT
AND
COOKE COUNTY COLLEGE

STATEMENT OF INTENT:

The purpose of this articulation agreement is to provide a mechanism through which vocational/technical education programs at Gainesville Independent School District (GISD) and Cooke County College (CCC) will interface, thereby granting students who have mastered agreed-upon task competencies in vocational/ technical programs at GISD to receive post-secondary credit at CCC. The programs selected for interface in this agreement are the Associate of Applied Science Degree in Electronics Engineering Technology, and the Associate of Applied Science Degree in Electronics Technology.

DEFINITIONS:

The Definitions listed are accepted as stated in this document.

ARTICULATION:

Articulation is a formal document/agreement outlining conditions under which two institutions agree to operate, and is understood to be binding on both parties and their agents for the stated time stipulated in the document.

ARTICULATED CREDIT:

Articulated credit refers to post-secondary credit awarded to an individual student for having successfully completed a specified approved course at a secondary school under the authority and guidelines of an Articulation Agreement. The credit will be held in escrow until the student meets all of the applicable stipulations of the Articulation Agreement.

ASSESSMENT TEST:

Assessment test is a criterion referenced multi-facet screening tool designed to identify desired aptitudes of prospective students wishing to enter the programs outlined in the Articulation Agreement.

COMPETENCY BASED CURRICULUM:

Competency based curriculum identifies specific bodies of knowledge and skills to be learned and the specific level of competencies for each. The delivery method is designed to teach those specific bodies of knowledge and skills. The evaluation system is designed to evaluate and measure the level of learning for each of the specified competencies using a rating scale to reflect job readiness.

COMPETENCY PROFILE:

Competency profile is a formal record outlining the specific body of knowledge and skills, and the level of competencies attained by a student without reference to norms.

CONCURRENT CREDIT:

Concurrent credit refers to post-secondary credit awarded under Cooke County College's early admission program.

ESCROW:

Escrow is the "placement in holding" of eligible credit in a secure place where the credit can be transferred to the designated post-secondary institution under the authority and stipulations of an Articulation Agreement.

POST-SECONDARY CREDIT:

Post-secondary credit is credit awarded to a student for successfully completing a specified course under the authority of a post-secondary institution and The Texas Higher Education Coordinating Board.

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SECONDARY CREDIT:

Secondary credit is credit awarded to a student for successfully completing a specified course in grade level 9 through 12 under the authority of The Texas Education Agency.

SUBJECT MATTER EXPERT:

A subject matter expert is an individual who possesses the knowledge and skills associated with a defined occupational specialization.

2+2:

2+2 refers to a formal articulated curriculum existing between a secondary school and a community college or Technical Institute.

ARTICLES OF AGREEMENT:

A. ARTICLES:

1. This agreement will become effective upon approval by the President of Cooke County College (CCC), and the Superintendent of Gainesville Independent School District (GISD).GISD AND CCC agree to accept the conditions set forth in this document on an annual reoccurring basis.

2. GISD and CCC representatives including members of their respective administrative and teaching staff will meet on a semi-annual basis for the purpose of making recommendations to improve and update the conditions of this agreement. Recommendations will be formal and subject to approval by the President of CCC and the Superintendent of GISD.

3. GISD and CCC will establish an Advisory Committee consisting of members from business, industry and industrial counsels to assist in the continued development of the program.

4. Students will not be charged tuition or fee for articulated credit earned under this agreement. After successfully completing six hours and at the student's request, the transferred articulated credit will be recorded on CCC's official records.

5. Students enrolling for concurrent credit must meet all provisions of CCC's Early Admissions program, and must pay applicable tuition and fees at registration.

6. Competency Profiles will be maintained in a permanent file for credit earned under this agreement.

7. Approved courses taught by both institutions will have common syllabi, competencies, and standards.

8. Credit earned at GHS under this agreement is valid and transferable to CCC for a period of five years from the date of a students graduation from GHS.

9. All new faculty and administrators involved with this Articulation Agreement will receive in-service training on the agreement.

10. Both parties agree to make every effort possible to insure that students in the process will be provided reasonable opportunity to successfully complete the program. Petition to end this agreement must be submitted no less than one year in advance of the intended date of termination.

11. The petition must be submitted in writing and signed by the college president or the school superintendent making the petition.

12. The petition must be delivered to the second party to the agreement. Delivery of the intent to terminate will constitute formal notification and will serve as grounds for termination one year following the date of delivery.

B. COURSES ELIGIBLE FOR ARTICULATED CREDIT:

The following courses are approved as articulated program courses that may be taught at GHS and/or CCC, and will be accepted for transfer credit by CCC.

CCC Courses		GHS Courses
EL-1103	DC CIRCUIT ANALYSIS	DC CIRCUIT ANALYSIS
EL-1203	AC CIRCUIT ANALYSIS	AC CIRCUIT ANALYSIS
EL-1303	SOLID STATE DEVICES AND ANALOG CIRCUITS	SOLID STATE DEVICES AND ANALOG CIRCUITS
MA-1363	TECHNICAL ALGEBRA	***TECHNICAL ALGEBRA**
MA-1373	TECHNICAL TRIGONOMETRY	***TECHNICAL TRIGONOMETRY**
PH-1223	UNIFIED TECHNICAL CONCEPTS-PHYSICS	PRINCIPLES OF TECHNOLOGY-PHYSICS

C. COURSES ELIGIBLE FOR CONCURRENT CREDIT:

The following listed courses are approved as concurrent program courses that may be taught at GHS and/or CCC, and will be accepted for transfer credit by CCC.

	CCC Courses	GHS Courses
EL-1103	DC CIRCUIT ANALYSIS AC CIRCUIT ANALYSIS	DC CIRCUIT ANALYSIS AC CIRCUIT ANALYSIS
EL-1303	SOLID STATE DEVICES AND ANALOG CIRCUITS	SOLID STATE DEVICES AND ANALOG CIRCUITS
GO-2443	AMERICAN STATE AND LOCAL GOVERNMENT	AMERICAN STATE AND LOCAL GOVERNMENT
MA-1363	TECHNICAL ALGEBRA	***TECHNICAL ALGEBRA**
MA-1373	TECHNICAL TRIGONOMETRY	***TECHNICAL TRIGONOMETRY**
MA-1113	COLLEGE ALGEBRA	COLLEGE ALGEBRA
MA-1123	TRIGONOMETRY	TRIGONOMETRY
EN-1043	GRAMMAR AND COMPOSITION	ENGLISH IV-1 HONORS
EN-1053	LITERATURE AND COMPOSITION	ENGLISH IV-2 HONORS

D. ELIGIBILITY:

Entry into the Electronics Engineering Technology and Electronics Technology Programs at CCC may be gained by the following methods:

HIGH SCHOOL STUDENTS:

1. Students enrolled in Gainesville High School.(GISD) may enroll in the programs under the following conditions:
   a. Enrolled in good standing.
   b. Enrolled in Grade level 11 or above. The courses identified with an "*" may be taken in grade level 10 or above.
   c. Have successfully completed the program assessment test.
   d. Have secured the approval of the high school counselor.

COOKE COUNTY COLLEGE STUDENTS:

1. Students enrolled in CCC may enroll in the programs under the following conditions:
   a. Enrolled in good standing
   b. Have successfully completed the program assessment test.
   c. Have secured the Electronics Department counselor's approval.

GENERAL PUBLIC:

1. The general public may enroll in the programs under the following conditions:
   a. Satisfy existing entrance requirements of CCC.
   b. Have successfully completed the program assessment test.
   c. Has secured the Electronics Department counselor's approval.

E. PROCEDURES:

The conditions of articulation are hereby set forth:

1. **High school enrollment:**

   Students in grade level 7 and above will be counseled periodically in each grade level pertaining to the articulated program and the required prerequisites.

   a. Option # 1 concurrent credit:
   Students must follow established CCC concurrent credit enrollment procedures. Students desiring to enter the Electronics Program as a concurrent credit student will request permission to be tested through their counselor. At that time the student will be provided a list of requirements and scheduled for the required assessment test. Upon successful completion of the assessment test the student will be admitted to the degree program of their choice.

   b. Option # 2. Articulated credit:
   Students desiring to enter the program as an articulated credit student will request permission to be tested through their counselor. At that time the student will be provided a list of requirements and scheduled for the required assessment test. Upon successful completion of the assessment test the student will be admitted to the degree program of their choice.

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AUTHENTICATION:

This document is accepted as the 2+2 Electronics Program Articulation Agreement existing between Cooke County College, Gainesville, Texas and Gainesville Independent School District, Gainesville, Texas.

President,

Cooke County College

Date May 24, 1989

Superintendent,

Gainesville ISD

Date May 24, 1989

GAINESVILLE HIGH SCHOOL
EVALUATION CRITERIA SCALE

High Low

[✓ 4] 3 2 1 0 1. Equipment needs have been established in careful relationship to the proposed instructional program.

[✓ 4] 3 2 1 0 2. A bibliography of related instructional resources needed for program support (books, A.V. materials, etc.) has been established.

[✓ 4] 3 2 1 0 3. Planned courses are properly sequenced.

[✓ 4] 3 2 1 0 4. Planned courses are competency based.

[✓ 4] 3 2 1 0 5. Procedures for student evaluation are included in each course.

4 3 [✓ 2] 1 0 6. A student tracking system has been established.

4 3 [✓ 2] 1 0 7. Competency profiles for each student are included in the model program plan.

[✓ 4] 3 2 1 0 8. Articulation plans between the local ISD's and post-secondary institutions are in place.

[✓ 4] 3 2 1 0 9. Course syllabi are complete.

4 3 2 [✓ 1] 0 10. Clearly written program goals and objectives, considering the needs and interests of students have been developed.

4 3 [✓ 2] 1 0 11. Student performance objectives are considered in the development of program goals and objectives.

[✓ 4] 3 2 1 0 12. Curriculum is relevant to current industry.

4 3 [✓ 2] 1 0 13. Written instructional objectives have been developed, and they contain a description of standards or level of performance required of students.

4 3 2 [✓ 1] 0 14. Completion of courses provides the student with skills required for entry level employment.

4 3 [✓ 2] 1 0 15. Standards for measuring level of performance have been identified and are consistent with instructional objectives.

[✓ 4] 3 2 1 0 16. Need for the program has been established through collaborative efforts of the local Independent School District, Post-Secondary Institutions, Texas Education Agency and potential employers.

4 [✓ 3] 2 1 0 17. Thorough evaluation of similar existing programs is evident.

[✓ 4] 3 2 1 0 18. The cooperating institutions have committed enough resources to sufficiently develop a model 2+2 Electronics Program.

SCALE
High Low

[✓ 4] 3 2 1 0 19. Evidence exists that suggestions and recommendations of the steering committee have been included in the program development process.

4 [✓ 3] 2 1 0 20. Instructional facilities, including both classroom and laboratory space have been carefully designed.

[✓ 4] 3 2 1 0 21. Procedures for program review and modification have been established.

4 [✓ 3] 2 1 0 22. Overall program evaluation.

Thomas N Colbath
Mr. Tom Colbath

B J Dean
Dr. Bill Dean

Barbara Hazelwood
Dr. Barbara Hazelwood

J E Cogswell
Dr. J.E. Cogswell

EVALUATION COMMITTEE RECOMMENDATIONS

ITEM # 5	Provided discussed charges in grading system are implemented.
ITEM # 6	Needs tracking beyond Lone Star Tracking System.
ITEM # 7	Need to determine whether this program is to be under industrial umbrella or as new designation. If new, a new Competency Profile must be prepared and submitted.
ITEM # 10	Goals need to be less broadly defined and objectives be more specifically stated.
ITEM # 11	Methods for measuring the student's competency in the defined objectives have not been established. The objectives are found under Tab #9/14 rather than Tab #11.
ITEM # 13	Same comments as # 11.
ITEM # 14	Rating is based upon ONLY completion of the High School portion of the program. This would convert to a "4" upon completion of the entire 2+2 Program.
ITEM # 15	Same comments as # 11.
ITEM # 17	This item needs to be documented.
ITEM # 20	More detail is needed for lab layout i.e.dimensions, electrical power distribution and audio/visual provisions.

COOKE COUNTY COLLEGE
REBUTTAL OF THE EVALUATION
OF
A MODEL 2+2 ELECTRONICS TECHNOLOGY PROGRAM DEVELOPMENT PROJECT

The following actions have been taken in response to the evaluation of the Model 2+2 Electronics Technology Program Development Project conducted by the Evaluation Committee on May 22, and 23, 1989.

ITEM # 5 The suggested changes in the grading system have been incorporated in the Project Syllabi.

ITEM # 6 Lone Star Tracking will be used for students that are enrolled in Cooke County College and supplemented by a follow-up system identified as Tex-Sis for graduates and non-returning students. A similar tracking system will be implemented at Gainesville High School as outlined in this document.

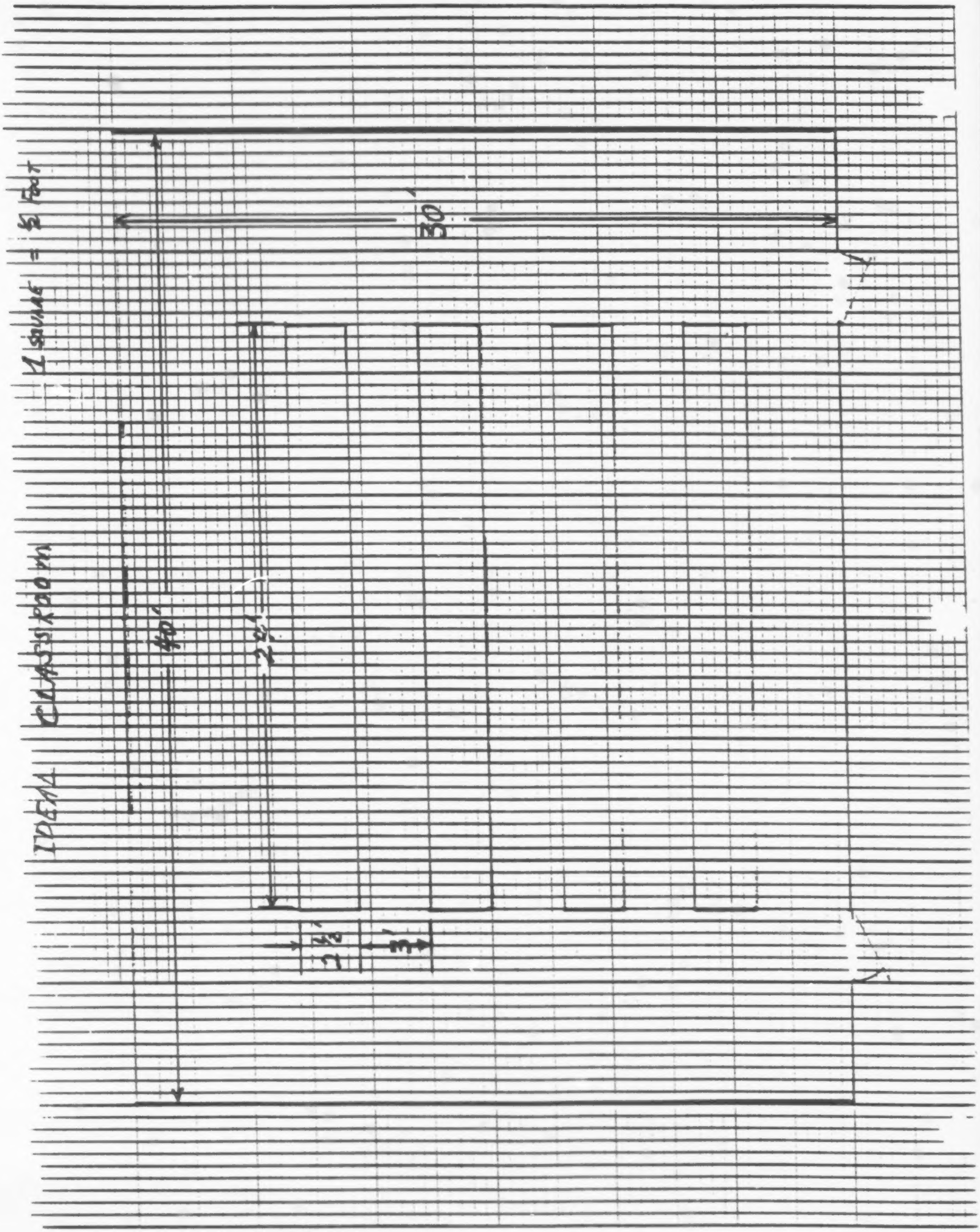
ITEM # 7 Determination was made by Mr. Tom Loftin that the program will not fall under the industrial umbrella. The program will fall under Technology and course titles will have codes assigned upon the completion of this pilot project.

ITEM # 10 Goals and Objectives were embedded in the program descriptions and Syllabi. A separate page of Goals and Objectives were generated and incorporated for clarity.

ITEM # 14 The intent of this program development was to provide two exit points those being High School and College. The evaluators assumed the exit point to be at the College level with skills for fully qualified Electronics Technician entry levels. The intent of the high school exit point was to provide students with entry level skills that would increase the employability of the high school student in Electronics related jobs classified between non-skilled and fully-skilled. This program certainly will fulfill that goal and provide the foundation to support the evaluators comment of converting this rating to 4 upon completion of the college degree.

ITEM # 17 Sufficient documentation will be included in the final product in the form of Timeline. Comments were made by evaluators that it was obvious that the suggested evaluation had been done but written documentation should be more complete.

ITEM # 20 The architectural firm of SHWC has been contracted to develop plans for the construction of lab facilities to be built to the college specifications. Preliminary plans are included.


IDEAL CLASSROOM
1 square = ½ foot
30'
40'
22'
2½'
3'

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2 + 2 ELECTRONICS
PROGRAM SUPPORT EQUIPMENT
GAINESVILLE INDEPENDENT SCHOOL DISTRICT
PRIORITY ONE RECOMMENDATION

ITEM	QUANTITY	DESCRIPTION	COST/UNIT	TOTAL/COST
1	5	NIDA Model 130 Test Console		
2	1	NIDA Model 130C Test Console		
3	5	NIDA DC Circuit Card Sets		
4	1	NIDA CAI DC Circuit Card Sets		
5	5	NIDA AC Circuit Card Sets		
6	1	NIDA AC Circuit Card Set		
7	5	NIDA Analog Circuit Card Sets		
8	1	NIDA CAI Analog Circuit Card Set		
9	5	NIDA Digital Circuit Card Sets		
10	1	NIDA CAI Digital Circuit Card Set		

DC Circuit CAI Program Masters
AC Circuit CAI Program Masters
Analog Circuit Program Masters
Digital Circuits Program Masters
Divided by 2

Total Delivery Systems
Total Test Equipment
Total Instructor Work Station

Principals of Technology

============
$ 73,199.

NOTE: Furniture
6 Tables
12 Chairs

7,500.
============
$ 80,699.

2 + 2 ELECTRONICS
PROGRAM SUPPORT EQUIPMENT
GAINESVILLE INDEPENDENT SCHOOL DISTRICT
PRIORITY ONE RECOMMENDATION

ITEM	QUANTITY	DESCRIPTION	COST/UNIT	TOTAL/COST
1	5	NIDA Model 130 Test Console		
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5	5	NIDA AC Circuit Card Sets		
6	1	NIDA AC Circuit Card Set		
7	5	NIDA Analog Circuit Card Sets		
8	1	NIDA CAI Analog Circuit Card Set		
9	5	NIDA Digital Circuit Card Sets		
10	1	NIDA CAI Digital Circuit Card Set		

DC Circuit CAI Program Masters
AC Circuit CAI Program Masters
Analog Circuit Program Masters
Digital Circuits Program Masters
Divided by 2

Total Delivery Systems	
Total Test Equipment	
Total Instructor Work Station	
Principals of Technology	
TOTAL	$ 73,199.
NOTE:Furniture 6 Tables 12 Chairs	7,500.
	$ 80,699.

INSTRUCTOR QUALIFICATION
2+2 PROJECT

Faculty authorized to teach courses under the **2+2 Articulation Agreement** at the secondary level, and post-secondary level must possess the qualifications as outlined below:

SECONDARY SCHOOL:

I. B S in Electronics or related field from an accredited institution.

Three years of full time, wage earning experience in the occupation to be taught.

Two years successful experience teaching Trades and Industry while on Emergency Teaching Permits.

Six specified courses of professional teacher education.

Approval of Statement of Qualifications.

II. AAS in Electronics from an accredited institution.

Three years of full time, wage earning experience in the occupation to be taught.

Two years successful experience teaching Trades and Industry while on Emergency Teaching Permits.

Six specified courses of professional teacher education.

Approval of Statement of Qualifications.

POST SECONDARY:

I. GENERAL SUBJECT COURSES

A. Meet the minimum certification standards of the Texas Higher Education Coordinating Board for the course taught.

II. ELECTRONICS COURSES

A. Meet the minimum certification standards of the Texas Higher Education Coordinating Board for vocational/technical instructor in the subject area taught.

B. Must have a combination of five years work experience in the subject area and/or teaching experience in the subject area.

RETROSPECT

Through the vision of hindsight we are able to see clearly the shorter and more efficient path to success in the completion of the final product of this grant.

To the Coordinating Board, success is a guide to assist other institutions to efficiently develop similar Articulated Programs.

To the two institutions and their constituents, success is a new emerging, fully articulated electronics program that will set the tone of Technical Education for the foreseeable future.

It is the hope of all who have labored in this effort that those who undertake similar projects will also meet with similar success.

With that in mind, we wish to offer a bit of advice and yes a caveat or two.

RECOMMENDATIONS

A. Turf has not been a problem in this project and should never be when engaged in the development of educational opportunities of our students. However it can be and is not always recognizable.

B. Activities which we would prefer to do differently, if it were within our power to do so, would be as follows:

1. We would go directly to the chief executive officer of industries within the discipline area in our search for committee members.

   Please do not misunderstand. The support and dedication given to this project by each committee member was simply outstanding. The quality of the committee member may be overshadowed by the incumbrance placed on that committee member to arrange time off from employment for committee activities. A fringe benefit from the suggested action would encourage a more active participation by the industry as a whole.

2. We would not ever schedule a committee meeting during the same evening as a joint Articulation and Steering Committee meeting. This practice will lead to mis-communication especially if an individual serves on both committees.

3. Work should continue by the Texas Education Agency and the Texas Higher Education Coordinating Board to bring the concurrent credit under the same umbrella as the articulated credit described in the Articulation Agreement found in this document.

CAVEATS

1. Do not allow existing school laws and interpretations of those laws to dictate the development of a new innovative program.

2. Establish realistic prerequisites and use them without exception.

L ____________________
County/District Number

TEXAS EDUCATION AGENCY
Standard Application System
Notice of Grant Award for Programs Funded Under SAS-

____
Applicant (Eligible Recipient)

☐ New Application
☐ Amended Application No

This will advise that the Application for Fiscal Year 198___ has been approved in the following amounts contingent upon the availability of funds to the Texas Education Agency:

1. Doc No	Name of Funding Source (A)	Revenue Code (B)	SOF No (TEA) (C)	Project No. Assigned by TEA (D)	Begin. Date of Project (E)	End. Date of Project (F)	Previously Approved (G)	Increase (Decrease) (H)	Approved Amount (I)	Tent Alloc (J)	TEA USE ONLY Cash Pmt. Month | % (K)
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$ 0	$ [illegible]	$ [illegible]		

2. Applicant's Standard Application System (Form SAS-____), Document Control Number ____________________ as amended by Agency, is attached and hereby incorporated by reference and, therefore, made a part of this grant award. The contents of this SAS is determined by the letter X placed in the appropriate column of Section 6 on the General Information page of this SAS, and any written incorporations by reference found on these Schedules. Also incorporated by reference into this grant award are the "Statement of Conditions" and "Other Statements of Provision or Assurance" printed on the back of this grant award form or elsewhere in the incorporated Application.

3. **Offer Accepted By Grantee**

The signature of the Applicant's authorized officer contained on the Applicant's Application referred to in 2. above, is hereby incorporated by reference and made a part of this Grant Award Contract.

4. **Acceptance Approved By Grantor**

____________________ Date
Signature of Commissioner of Education or Designee
Texas Education Agency

Distribution:
White—TEA
Green—Accounting
Canary—Grantee

Pink—Division
Goldenrod—Document Control

SAS-(0)

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TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #1—General Information

049-901
County-Distric

99420063
Project No. (Assigned by

1. **Applicant Agency:**
(Name, Address, City, State, Zip)
Gainesville ISD
1201 Lindsay
Gainesville, Texas 76240

2. **Applicant Contact Person:**
(Name, Title, Address (if different))
Tom Loftin,
Assistant Superintendent
Phone (817 665-4362

3. **Purpose of Application:**
☒ New Application
☐ Amended Application No.
RFA-701-88-017

4. **Use of the Standard Application System:** This system provides a series of standard schedules to be used as formats by applicants who
for funds administered by the Texas Education Agency. If additional clarification is needed, please call (512) 463-9446.

5. **Program Authority:** Public Law 98-524, Title II
☒ A Curriculum Development
☐ B Personnel Development
☐ C Program Development

Title of Project A Model Secondary/Postsecondary 2+2 Program to Prepare Students for Employment RFA# 2-01

6. **Index to this Application:** An X has been placed in the (X) column to indicate each Schedule that must be submitted as a part of the applic
The applicant must place an X in the (X) column by each additional Schedule required to complete the application. For amendments, the app
must place an X in the Amend. column next to the Schedule No. being submitted with an amendment to this application.

Sch. No.	Schedule Name	(X)	Amend.	Sch. No.	Schedule Name	(X)	Am
1	General Information	X	X	4	Program Abstract	X	
2	Certification for Cooperative Projects	N/A		4A	Program Needs Assessment	N/A	
3	Budget Summary	X		4B	Program Narrative/Description	X	
3A	Amended Budget Summary	X		4C	Program Evaluation Design	X	
▨	Support Schedules for—	▨	▨				
3B	Payroll Costs 6100	X					
3C	Purchased and Contracted Services 6200	X					
3C.1	Request for Contracted Consultant Services	X					
3D	Supplies and Materials 6300	X					
3E	Other Operating Expenses 6400	X					
3F	Lease Purchase—Construction/Remodeling 6512, Lease Purchase—Furniture and Equipment 6512 and Capital Outlay—Construction/Remodeling 6620	N/A					
3G	Capital Outlay—Furniture and Equipment 6630	N/A		6	Provisions & Assurances	X	

Certification and Incorporation

7. I hereby certify that the information contained in this application is, to the best of my knowledge, correct and that the local education agency
above has authorized me as its representative to obligate this agency. I further certify that any ensuing program and activity will be con
in accordance with all applicable Federal, State, and local laws and requirements, the Provisions and Assurances, and the schedules
as indicated above. It is understood by applicant that this application constitutes an offer, and if accepted by Agency or renegotiated
tance, will form a binding agreement.

Typed Name and Title of Authorized Official	Telephone Number	Date Signed
Charlie Uselton, Sup't.	817/665-4362	8/2/88

Charlie L. Uselton
Signature

By May 20, 1988
Return 10 copies of the application
with two original signatures to:
Texas Education Agency
Document Control Center
William B. Travis Bldg., Rm. 6-108
1701 N. Congress Avenue
Austin, Texas 78701

550/8/4/88-055
TEA DOCUMENT CONTROL NO.

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Amendment # ______________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #3—Budget Summary

049-901
Co.-Dist.

Project No. (Assigned by
5/2/88
Date Subm

Instructions
1. Report whole dollar amounts only. Omit decimals.
2. Totals from all Budget Schedules must appear on this Schedule.

Program Authority: Public Law 98-524, Title II

Line No.	Class/Object Description	Schedule Number	C/Obl. Code	Budgeted Expenditures Federal	Nonfedera
01	Payroll Costs	3B	6100	$ 44,207	$
02	Purchased and Contracted Services	3C	6200	3,200	
03	Supplies and Materials	3D	6300	540	
04	Other Operating Expenses	3E	6400	2,050	
05	Lease Purchase—Construction/Remodeling, Furniture and Equipment	3F	6512	▨	▨
06	Capital Outlay—Construction/Remodeling	3F	6620	▨	▨
07	Capital Outlay—Equipment and Furniture	3G	6630	▨	▨
08	Total Direct Costs (Sum of lines 1-7)	▨	▨	$ 49,997	$
09	Flow Thru-Out (Other Uses)	▨	6991	▨	▨
10	Indirect Costs (Not to Exceed 8%)	▨	▨		▨
11	Total Budget Costs			$ 49,997	$

NOTE: Reimbursement will be computed on total approved expenditures, federal plus nonfederal. The reimbursement percentage for fede will be the same as the ratio of approved federal expenditures to total approved expenditures.

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INSTRUCTIONS
1. Report whole dollar amounts only
Omit decimals

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89

SCHEDULE #3A—Amended Budget Summary

N/A

059 901
County District No

Project No (Assigned by TEA)

8/2/88
Date Submitted

Program Authority Public Law 98 524 Title II

Line No.	Class/Object Code	Federal Previously Approved Budget (A)	Amount Deleted (B)	Amount Added (C)	Federal New Budget (D)	Justifications for Budget Amendments (Please Type) (E)
01	6100	$	$	$	$	
02	6200					
03	6300					
04	6400					
05	6512					
06	6620					
07	6630					
08	Total Direct Costs	$	$	$	$	
09	Flow Thru Out 6991					
10	Indirect Cost (Not to Exceed 8%)					
11	Total Budget Costs	$	$	$	$	

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Amendment #
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TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89

SUPPORT SCHEDULE #3B—Payroll Costs 6100

059 901
Co Dist No

Project No (Assigned by TEA)

8/2/88
Date Submitted

Page 1 of 1

Instructions
1. Report whole dollar amounts only. Omit decimals
2. On line #01-09, report FTE or Payroll Cost as indicated in the instructions
3. On line #10, enter total cost

Program Authority: Public Law 98 524, Title II

Line No.	Name, Title of Position	% of Time Funded	Months or Hours Employed	Monthly Salary or Hourly Wage	Total Salary or Wages	Fringe Benefits	Total Federal	Total Nonfederal
01	Project Coordinator (to be named)	50	10	$ 2,900	$ 14,5000	$ 1,740	$ 16,240	$
02	Instructor (to be named)	100	10	2,200	22,000	2,229	24,229	
03	Secretary (to be named)	25	10	1,358	3,395	293	3,688	
04								
05								
06								
07								
08								
09								
10	Total Cost						$ 44,207	$

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(Complete only on amendments)

049-901
County-District N

Project No. (Assigned by TEA
8/2/88
Date Submit

Page ____ of ____

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SUPPORT SCHEDULE #3C
Purchased and Contracted Services 6200

INSTRUCTIONS
1. Report whole dollar amounts only. Omit decimals.

Program Authority: Public Law 98-524, Title II

Line No.	Type and Description of Service and/or Product to Be Delivered	Quantity	Rate/Cost Per Unit	Budgeted Expenditu	
				Federal	Nonfede
01	Consultants	5 days	$ 350	$ 1750.	$
02	Business & Industry Consultants	3½ days	415	1450.	
03					
04					
05					
06					
07					
08					
09					
10	TOTAL COST			$ 3200.	$

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(Complete only on amendments)

TEXAS EDUCATION AGENCY

Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #3C.1—Request for Contracted Consultant Services

049-901
County-District N:

Project No. (Assigned by TE
5/2/88
Date Submitte

a. Program Authority: Public Law 98-524, Title II

b. This contract is budgeted on line # 1 of Support Schedule #3C

1. **Consultant:**

Name unknown

SS/ID Number ____________

Address ____________

2. **Qualifications of Consultant** (including certification if applicable):

Vocational director from public school system with established electronics programs or vocational dean from community college with successful articulati agreements in place with ISD's.

3. **Expenses:**

a. **Fee to Be Paid:**

$ 200 per day for a total of 5 days. **Total Fee:** $ 1,000

b. **Other Costs:**

Travel: $ 500, **Per Diem:** $ 250, **Other:** $ ____. **Total Other Costs:** $ 750

c. **Total Contract Amount:** $ 1,750

4. **Work to Be Performed:** make suggestions for program content. Advise on referenci of courses. Technical assistance.

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(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #3C.1—Request for Contracted Consultant Services

049-901
County-District No.

Project No. (Assigned by TEA)

8/2/88
Date Submitted

a. Program Authority Public Law 98-524, Title II

b. This contract is budgeted on line # 2 of Support Schedule #3C.

1 **Consultant:**

Name Unknown

SS/ID Number

Address

2. **Qualifications of Consultant** (including certification if applicable):

Personnel directors or unit managers from well-established electronics manufacturing facilities, i.e., Boeing, Texas Instruments, Collins Radio or General Dynamics.

3. **Expenses:**

a. **Fee to Be Paid:**

$ 200 per day for a total of 3½ days. **Total Fee:** $ 700

b. **Other Costs:**

Travel: $ 500, Per Diem: $ 250, Other: $ ______. **Total Other Costs:** 750

c. **Total Contract Amount:** $ 1,450

4 **Work to Be Performed:** Assist staff in designing curriculum to meet knowledge and skill requirements of business and industrial firms.

Amendment # ____________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SUPPORT SCHEDULE #3D—
Supplies and Materials 6300

049-901
County-District

Project No. (Assigned by

8/2/88
Date Subm

INSTRUCTIONS
1 Report whole dollar amounts only. Omit decimals

Program Authority: Public Law 98-524, Title II

Line No	Description of Expense Items	Budgeted Expenditures	
		Federal	Nonfederal
01	General Office Supplies	$ 540	$
02			
03			
04			
05			
06			
07			
08			
09			
10	TOTAL COST	$ 540	$

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(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project

School Year 1988-89
SUPPORT SCHEDULE #3E—
Other Operating Expenses 6400

049-901
County-District No.

____
Project No. (Assigned by TEA)

8/2/88
Date Submitted

Page 1 of 1

INSTRUCTIONS
1. Report whole dollar amounts only. Omit decimals.

Program Authority: Public Law 98-524, Title II

Line No.	Description of Expense Items	Budgeted Expenditures	
		Federal	Nonfederal
01	Instate travel of coordinator and/or teacher	$ 450	$
02	Travel of Steering Committee	1600	
03			
04			
05			
06			
07			
08			
09			
10	TOTAL COST	$ 2050.	$

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Amendment # ____________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project

School Year 1988-89
SUPPORT SCHEDULE #4—
Program Abstract

049-901
County-District No.

Project No. (Assigned by TEA)

5/2/88
Date Submitted

Instructions: This abstract form was developed by the Office of Vocational and Adult Education, U.S. Department of Education, to provide detailed information on federally funded projects. It is required for all program improvement projects. Fill in appropriate information for all items except 1, 2, and 9

Part A—Project Identification

1. Name of State Submitting
Texas

2. Type (Check One)
☒ Contract ☐ Contract No. (Specify) ____________
☐ In-House ☐ Project No. (Specify) ____________

3. Title of Project
2 Plus 2 - Electronics Program Development

4. Principal Investigator(s) and Organization(s)
Gainesville ISD

Telephone No. (Include Area Code)
817/665-4362

5. Address (Include Number, Street, City, State, and ZIP Code)
1201 Lindsay Gainesville, Texas 76240

6. Organization Type (Check Primary Group(s))
☐ College/University
☒ Local Education Agency
☐ Intermediate Service Agency
☐ Indian Tribe
☐ Professional Organization
☐ Community-Based Organization
☐ Individual
☐ State Education Agency
☐ Small Business
☐ Non-Profit
☐ Other (Specify) ____________

7. Funding Period
Starting Date 7/1/88 Ending Date 6/30/89

8. Source of P.L. 98-524, Title II Funds (Federal Funds Only)
A. Curriculum Development $ 49,997
B. Personnel Development $ ____________
C. Other Program Improvement $ ____________

9. Charged to Federal Appropriation Year(s)

10. Level of Activity's Impact (Check Primary Level)
☐ Adult ☒ Secondary
☒ Post Secondary ☐ Other (Specify) ____________

11. Location
☐ Isolated Rural ☐ Inner City
☐ Suburban ☐ Other (Specify) ____________

12. Special Population Target Groups (Check Relevant Group(s))
☐ Handicapped
☐ Disadvantaged
☐ Limited English Proficiency
☐ Persons in Need of Retraining
☐ Persons in Correctional Institutions
☐ Single Parents/Displaced Homemakers
☐ Persons in Non-Traditional Occupations
☐ Displaced Workers
☐ Persons in Programs to Eliminate Sex Bias/Stereotyping
☒ Other (Specify) Secondary - Post Secondary Stude

No further monies or other benefits may be paid out under this program unless this report is completed and filed as required by existing and regulations.

(over)

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Part B—Project Description Abstract

(Fill in the following project description.)

1 OBJECTIVES (Describe the major objectives of this project.)

1. To develop a secondary competency based occupational training program/curriculum linked to and in cooperation with a two year postsecondary developmental program.
2. To develop an evaluation, student monitoring and follow-up system.

2 PROCEDURES (Describe the processes to be used in implementing and evaluating this project.)

Gainesville ISD, in cooperation with Cooke County College, proposes to develop a model 2+2 associate degree elctronics program. The program will develop an Electronics Manufacturing Technology to help satisfy the demand for well-trained specialists at currently operating electronics related industries and two new electronics manufactung firms presently under construction in Cooke County College and Gainesville ISD's service area.

See Attachment B-2 for processes for implementing and evaluating this project.

3. PRODUCT(S) TO BE DELIVERED (Indicate type, quantity and recipients. R&D outcomes may be a product, a model, a policy finding, or a research result. R&D products are tangible, transportable, self-contained outcomes of the R&D process. source: adapted from "The R&D Exchange: An Emerging Effort," National Institute of Education, 1978.)

1. One (1) finished copy and one (1) camera ready copy of any product developed in the project.
2. Two (2) copies of quarterly progress reports.
3. Five (5) copies of a comprehensive final report of the project.

4 QUALITY CONTROL OF PRODUCT(S) (Describe processes to be used to assure high quality product(s).)

An Evaluation Committee, consisting of two occupational/technical deans and two secondary curriculum specialists who are responsible for administering electronic or technical programs, will evaluate the program for curriculum quality: appropriate of classroom and laboratory space and equipment; student access to the program: quality of promotional literature: and degree of involvement by external agencies.

See attachment B-4 for specific evaluation criteria.

Signature of Vocational Education Program Improvement Coordinator, Texas Education Agency	Date

SAS-303

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Attachment B-2 PROCEDURES

Procedures	Performance Measures	Timelines
1. Employ a full-time coordinator to develop and implement a model 2+2 electronics technology program. Provide the new coordinator with the results of the survey conducted during the current school year concerning projected personnel needs for the next five years.	A Project Coordinator is employed by Cooke County College and Gainesville ISD.	September 21, 198
2. An instructor to be hired by Gainesville ISD to develop a high school curriculum with relevant academic components in reading, writing, math, and science. Also, computer usage and general employability skills will be included.	An instructor is employed by GISD.	September 21, 198
3. Establish linkage with private industry, public schools, Chambers of Commerce, private industry councils, other post-secondary institutions with established electronics programs, and representatives from the Coordinating Board and the Texas Education Agency. The news media will be kept aware of the program's progress.	A Steering Committee with representatives from business, industry, secondary education, post-secondary education, news media, local Chambers of Commerce, private industry councils, the Texas Education Agency and the Coordinating Board is established. The committee will assist with analyzing surveys of local businesses and industries to determine program employment needs and job competencies.	October 17, 1988
4. A Steering Committee will advise and assist project staff members in identifying program objectives; designing and developing competency-based curriculum for basic, core and specialty courses; developing course outlines and student competency profiles; identifying required instructional resources including instructional materials, facilities and equipment; identifying courses for delivery at secondary (Grades 11-12) and post-secondary (Grades 13-14) levels; and developing assessment instruments for student placement. The Committee will also prepare syllabi for each course, construct concept modules where appropriate, and make recommendations concerning expected student prerequisites and student exit skills at each course level.	The Steering Committee will review and make recommendations concerning work performed by the project staff.	January 10, 1989

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Attachment P (continued) Procedures

Procedures	Performance Measures	Timelines
5. Develop a list of curriculum reference materials.	Revisions completed after consultation with Steering Committee.	March 1, 1989
6. Develop a competency profile for secondary and post-secondary programs.	Revisions completed after consultation with Steering Committee.	March 13, 1989
7. Evaluate the curriculum.	Revisions completed after consultation with Steering Committee.	March 13, 1989
8. Develop a system to track students from program entry through first year of employment and develop a process for on-going evaluation and improvement of instructional components.	Project staff will make recommendations for appropriate tracking and evaluation mechanisms to be approved by the Steering Committee.	April 14, 1989
9. Refine instructional materials for first year of secondary program.	Project staff, with assistance from the Steering Committee, will finalize the instructional materials.	May 1, 1989
10. Finalize laboratory and classroom equipment/tools needs for both secondary and post-secondary classrooms and design appropriate layout for classroom and laboratory space which will include cost figures.	The Project Coordinator and members of the Steering Committee will make on-site visits to other educational and industrial training sites and then make recommendations concerning appropriateness of layout and design of laboratory and classroom equipment/tools needs.	May 1, 1989
1. Develop recommended teacher approval criteria.	Revisions will be made after Steering Committee review. Then will be submitted to Texas Education Agency and the Texas Higher Education Coordinating Board for review.	May 1, 1989
2. Program staff, with assistance from CCC's community relations staff, will develop specific promotional literature. Primary emphasis will target public school students grades 7-10.	Promotional literature reviewed and approved by the Steering Committee.	May 22, 1989
3. Promotional literature revisions as recommended by the Steering Committee is completed.		May 29, 1989
4. Finalize plans for equipping classroom and laboratories	Administrative review of plans.	June 6, 1989

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Attachment (continued) Procedures

Procedures	Performance Measures	Timelines
15 Evaluation of project.	An Evaluation Committee, consisting of two occupational/technical deans and two secondary curriculum sepcialists who are responsible for administering electronics or technical programs, will evaluate the program for curriculum quality; appropriateness of classroom and laboratory space and equipment: student access to the program; quality of promotional literature; and degree of involvement by external agencies. Please refer to Part B 4 for specific criteria.	June 5, 1989
16 Plan for implementation of program.	GISD Board of Trusteees reviews and approves program start up.	June 19, 1989
17. Final first-year report completed and suggested procedures for follow-up delineated.	Final report to the Texas Education Agency	June 30, 1989
18. Implement secondary curriculum	Enroll students in secondary curriculum.	September, 1989

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PROJECT DESCRIPTION ABSTRACT 3 (a)

Products to be delivered:

A project coordinator is employed by Cooke County College and GISD.

An instructor to be hired by Gainesville ISD to develop a high school electronic curriculum with relevant academic components in reading, writing, math and science Also, computer usage and general employability skills will be included.

A Steering Committee with representatives from businesses, industry, secondary education, post-secondary education, local Chambers of Commerce, private industry councils, the Texas Education Agency and the Coordinating Board is established. The Committee will assist with analyzing surveys of local businesses and industries to determine program employment needs and job competencies.

Project staff will make recommendations for appropriate tracking and evaluation mechanisms to be approved by the Articulation Committee.

Project staff, with assistance from the Articulation Committee, will finalize the instructional materials.

The Project Coordinator and members of the Steering Committee will make on-site visits to other educational and industrial training sites and then make recommenations concerning appropriateness of layout and design of laboratory and classroom, and equipment needs.

Promotional literature reviewed and approved by the Steering and Articulation Committees.

An Evaluation Committee, consisting of two occupational/technical deans and two secondary curriculum specialists who are responsible for administering electronics or technical programs, will evaluate the program for curriculum quality; appropriateness of classroom and laboratory space and equipment; student access to the program; quality of promotional literature; and degree of involvement by external agencies.

Enroll students in secondary curriculum.

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Amendment # __________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #4B—Program Description

049-901
County-District No.

____
Project No. (Assigned by TEA)

8/2/88
Date Submitted

Page 1 of 24

Program Authority: Public Law 98-524, Title II

Narrative/Description of the Program or Component (Use additional copies of this form as necessary.)

Gainesville Independent School District, in cooperation with Cooke County College, proposes to develop a model 2+2 associate degree electronics program. The program will develop an Electronics Manufacturing Technology to help satisfy the demand for well-trained specialists at currently operating electronics related industries and two new electronics manufacturing firms presently under construction in Cooke County College and Gainesville ISD's service area.

Because of the increasingly sophisticated demands on electronic specialists, student must master ever more difficult competencies in mathematics, including calculus, electronics theory, physics, etc. As a result, the underprepared student faces a nearly impossible taks of achieving the required competencies in a two-year time frame. The difficulty is well-documented through high attrition figures throughout the community college's electronics programs. As a result, a 2+2 integrated curriculum, which gives a student an optimum chance for success, is not only desirable but may well be crucial if the need for these specialists is to be met.

Discussion initiated by the college administration with Cooke County College Board of Trustees: the chief administrators of the Gainesville ISD: representatives from industrial firms, and the Gainesville area Chamber of Commerce have proven a growing need for electronic specialists in the immediate area. The construction of two electronics manufacturing plants (Texas Instruments just north of Denton and Boeing Electronics just south of Denton) added to the importance of this proposal. A survey conducted by Cooke County College during the current year of projected manpower and training needs in Cooke, Denton, and Montague counties confirms electronics technology as one of the technical areas offering the greatest prospects for expansion and additional jobs.

A Steering Committee comprised of representatives from the college, Gainesville ISD business and industry, new media, the local Private Industry Council, the Texas Education Agency and the Coordinating Board will be established. Its task will be to offer assistance in determining job market potential, as well as the kinds of skills mandated for employment in the area's emerging electronics industries and to identify elements for inclusion in the curriculum to be developed. This committee which includes private industry representatives, because of their experience will be expected to perform a leading role in recommending equipment/tools and in developing a line drawing for facilities and arrangement of equipment. The Steering Committee will also review and evaluate each element of the curriculum and a competency profile for secondary and post-secondary programs before they are accept

Amendment # ____________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #4B—Program Description

049-901
County-District

Project No. (Assigned by T

8/2/88
Date Subm

Page 2 of

Program Authority Public Law 98-524 Title II

Narrative/Description of the Program or Component (Use additional copies of this form as necessary.)

is operational. This committee will decide at what levels appropriate courses should be offered and will review the criteria for teacher approval which will be submitted to Texas Education Agency and the Texas Higher Education Coordinating Board.

There is also recognition of the need for cross-utilization of personnel and facilities at both the high school and community college levels: in short, a removal of artificial barriers to utilize the best teacher at the best facility to give the student the greatest chance to achieve required competencies, without regard to his classification. The Steering Committee will also work toward involving industry in the instructional process through summer hire program, internships, part-time instruction, equipment loan, field trips, and guest lecture appearances. This committee will also be instrumental in developing a tracking system for students entering the program.

Once agreement is reached concerning the components of a model 2+2 electronics prog work will begin toward the construction of a curriculum. The curriculum will be divided into courses complete with course objectives, entrance and exit competencies concept modules, materials needed for instruction and selected references. The program will be designed to accommodate students qualified for advanced placement as well those needing remedial assistance. By starting this program at the 11th grade level and developing a well-articulated awareness campaign going back to 7th grade, the highlights the needed mathematics skills for success in electronics and engineering the high attrition rate endemic to many existing electronics programs should be avoided. An added benefit of a well-articulated program will be the enhancement of requisite skills for entry into engineering degree programs should a student make that option upon completion of high school or any subsequent point.

Cooke County College and Gainesville ISD expect to hire a full-time program coordinator immediately upon approval of this grant. In addition, Gainesville ISD plans to hire an instructor in the fall of 1988 to write curriculum. Target date for implementation of the program will be fall, 1989. The secondary curriculum will be operational beginning the second year, but the entire program will be subject to revision as needed, especially during the first years of operation. Because of the nature of 2+2 programs, a six-year cycle will be necessary for implementatio of all four years of the curriculum, together with the necessary follow-up activities.

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Amendment # __________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #4B—Program Description

049-901
County-District Nc

Project No. (Assigned by TE
3/2/88
Date Submitte

Page 3 of 4

Program Authority: Public Law 98-524, Title II

Narrative/Description of the Program or Component (Use additional copies of this form as necessary.)

A student completing two years (secondary portion) of the 2+2 program will be employable in the field of electronics in one of the following occupations:

- Electric Motor Repairer
- Electric Appliance Repairer
- Battery Tester
- Electrical Line Splicer
- Electric Motor Winder
- Transformer Tester
- Battery Parts Assembler
- Electric Tool Repairer

A student completing the 2+2 program will be employable in the field of electronics in one of the following occupations:

- Electricial Supervisor, Substation
- Transformer Assembly Supervisor
- Electricial Apprentice, Powerhouse
- Corrosion - Control Fitter
- Electric-Motor-and-Generator Assembler
- Transformer Assembler
- Wireworker Supervisor
- Power-Transformer Repairer
- Voltage Tester
- Electric-Meter Installer
- Testing-and-Regulating Technician
- Supervisor, Electrical Assemblies
- Assembler and Wirer, Industrial Equipment
- Fabricator, Industrial Furnace
- Supervisor, Major Appliance Assembly
- Computer Technicians
- Numerical Control Maintenance
- Installation & Modification Technician
- Electronic Bench Technicians
- Microwave Installation & Maintenance
- Automotive Electronics

Records of the planning and development process, along with the activities of the Steering Committee will be made a matter of record. They will be added to the developed curriculum, course syllabi, specified competencies at each course level and ancillary materials developed through this project. All materials related to the program will be printed, bound, and made available to the Coordinating Board, the Texas Education Agency, secondary institutions, and post-secondary institutions wishing to utilize it as a guide for similar endeavors.

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Amendment # ____________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #4B—Program Description

049-901
County-District No

Project No. (Assigned by TEA

8/2/88
Date Submitted

Page 4 of 4

Program Authority Public Law 98-524, Title II

Narrative/Description of the Program or Component (Use additional copies of this form as necessary.)

It is expected that additional funding will be available in subsequent years for development and refinement of the curriculum. A tracking system to maintain accurate records of students entering, leaving, and completing the program is essential.

A follow-up study as suggested by the RFP will be conducted.

PART 4-B: EVALUATION CRITERIA

1. Equipment needs have been established in careful relationship to the proposed instructional program.

2. A bibliography of related instructional resources needed for program support (books, A.V. materials, etc.) has been established.

3. Planned courses are properly sequenced.

4. Planned courses are competency based.

5. Procedures for student evaluation are included in each course.

6. A student tracking system has been established.

7. Competency profiles for each student are included in the model program plan.

8. Articulation plans between the local ISD's and post-secondary institutions are in place.

9. Course syllabi are complete.

10. Clearly written program goals and objectives, considering the needs and interests of students have been developed.

11. Student performance objectives are considered in the development of program goals and objectives.

12. Curriculum is relevant to current industry requirement.

13. Written instructional objectives have been developed, and they contain a description of standards or level of performance required of students.

14. Completion of courses provides the student with skills required for entry level employment.

15. Standards for measuring level of performance have been identified and are consistent with instructional objectives.

16. Need for the program has been established through collaborative efforts of the local Independent School District, Post-Secondary Institutions, Texas Education Agency and potential employers.

17. Thorough evaluation of similar existing programs is evident.

18. The cooperating institutions have committed enough resources to sufficiently develop a model 2 plus 2 electronics program.

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19. Evidence exists that suggestions and recommendations of the steering committee have been included in the program development process.

20. Instructional facilities, including both classroom and laboratory space have been carefully designed.

21. Procedures for program review and modification have been established.

SCALE

High				Low
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22. OVERALL PROGRAM EVALUATION.

120

Amendment # ______________
(Complete only on amendments)

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
SCHEDULE #4C—Program Evaluation Design

049-901
County-District

____
Project No. (Assigned by T

8/2/88
Date Submi

Page 1 of ___

Program Authority: Public Law 98-524, Title II

Evaluation Design (Use additional copies of this form as necessary.)

Evaluation of each aspect of the proposal will take place throughout its development by the Steering Committee and by the Articulation Committee. Performance will be measured against goals and timelines included in the operational format of this proposal. A team comprised of occupational/technical administrators who are each responsible for administering electronics programs at their own institution. will conduct the final on-site evaluation. They will evaluate the program for curriculum quality; appropriateness of classrooms, laboratory space and equipment ✓ procedures for access and entry by students; quality of promotional literature; and degree of involvement of external agencies.

SEE PART 4-B FOR ADDITIONAL EVALUATION CRITERIA

GENERAL INSTRUCTIONS FOR SCHEDULE #4C - PROGRAM EVALUATION DESIGN

1. Describe the procedures to be used in assessing and documenting the results of the project in terms of the achievement of the stated objectives.

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
Schedule #6 - Provisions & Assurances

049-901
Co.-Dist. No.

Project No.
(Assigned by

Page 1 of 7

Program Authority: PUBLIC LAW 98-524, Title II

Statement of Provisions and Assurances for the Program(s) in this Application:

A. As used in these Provisions and Assurances,

"Contract" means the entire document, whatever its name or form, of which these Provisions and Assurances and other attachments and schedules, if any, are a part;
"Agency" means the Texas Education Agency;
"Contractor" means the party or parties to this contract other than Agency;
"Project Administrator" means the person representing Agency or Contractor, as indicated by the contract, for the purposes of administering the contract project;
"Contract Project" means the purpose intended to be achieved through the contract of which these Provisions and Assurances are a part;
"Applicant" means the same as "Contractor";
"Application" means the entire package submitted by the Applicant including the schedules included in the application and so indicated on the General Information page of the application package;
"Grant" means the same as "Contract";
"Grantee" means the same as "Contractor";
"Grantor" means the same as "Agency".

B. This contract is executed by Agency subject to the availability of funds appropriated by legislative act for the purposes stated. All amendments and/or extensions or subsequent contracts entered into for the same or continued purposes are executed contingent upon the availability of appropriated funds. Notwithstanding any other provision in this contract or any other document this contract is void upon appropriated funds becoming unavailable. In addition, this contract may be terminated by Agency at any time upon notice to Contractor. Expenditures and/or activities for which Contractor may claim reimbursement shall not be accrued or claimed subsequent to receipt of such notice from Agency. This contract may be extended or otherwise amended only by formal written amendment properly executed by both Agency and Contractor. No other agreement, written or oral, purporting to alter or amend this contract shall be valid.

The signature on the General Information page indicates acceptance of these assurances.

TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
Schedule #6 - Provisions & Assurances

049-90
Co.-Dist. No.

Project No.
(Assigned by TE

Program Authority: PUBLIC LAW 98-524, Title II

Page 2 of 7

C. Contractor shall hold Agency harmless from and shall indemnify Agency against any and all claims, demands, and causes of action of what ever kind or nature asserted by any third party and occurring or in any way incident to, arising out of, or in connection with any acts of Contractor, its Agents, Employees, and Subcontractors, done in the conduct of the contract project.

D. Contractor shall not assign or subcontract any of its rights or responsibilities under this contract, except as may be otherwise provided for in this contract, without prior formal written amendment of this contract properly executed by both Agency and Contractor.

E. Notwithstanding any other provision of this contract, Contractor shall not use or pay any consultant in the conduct of this contract project if the services to be rendered by any such consultant can be provided by Contractor's employees. Contractor shall, before retaining, contracting with, or incurring any obligation to pay any consultant to be paid more than $200 in any one day or $1,000 in total during the contract project, identify each such consultant in writing to Agency by name, address, Social Security or Employer Identification Number, qualifications, need for and proposed use of such consultant's services; and Contractor shall not, except as may be otherwise provided for in this contract, retain, contract with or incur any obligation to pay any such consultant without the prior written approval of the Commissioner of Education of Agency or his designee.

F. All encumbrances, accounts payable and expenditures shall occur on or between the beginning and ending dates of this contract. All goods must have been received and all services rendered during the contract period in order for the contractor to recover funds due. In no manner shall encumbrances be considered or reflected as accounts payable or as expenditures.

The signature on the General Information page indicates acceptance of these assurances.

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TEXAS EDUCATION AGENCY
Standard Application System (SAS)
Vocational Education Program Improvement Project
School Year 1988-89
Schedule #6 - Provisions & Assurances

049-901
Co.-Dist. No.

Project No.
(Assigned by TEA)

Page 3 of 7

Program Authority: PUBLIC LAW 98-524, Title II

G. Contractor shall maintain its records and accounts in a manner which shall assure a full accounting for all funds received and expended by Contractor in connection with the contract project. These records and accounts shall be retained by Contractor and made available for audit, by Agency and by others authorized by law or regulation to make such an audit, for a period of not less than seven (7) years from the latter of the date of completion of the contract project or the date of the receipt by Agency of Contractor's final claim for payment or final expenditure report in connection with this contract or if an audit has been announced the records shall be retained until such audit has been completed.

H. All materials, conceptions and products produced or conceived by Contractor, its employees, agents, consultants or subcontractors, arising out of the contract project shall be the sole property of Agency, and Agency shall have the exclusive right to copyright and patent these materials, conceptions and products, subject to applicable law. Contractor shall so bind all concerned.

I. If Contractor, in Agency's sole determination, fails or refuses for any reason to perform any of its obligations under this contract, Agency may impose such sanctions as it may deem appropriate, including but not limited to the withholding of payments to Contractor until Contractor complies, the cancellation, termination or suspension of this contract in whole or in part, and the seeking of other remedies as may be provided by this contract or by law. Any cancellation, termination or suspension of this contract, if imposed, shall become effective at the close of business on the day of Contractor's receipt of written notice thereof from Agency.

J. If this contract is canceled, terminated or suspended by Agency prior to its expiration date, the monetary value of services properly performed by Contractor pursuant to this contract shall be determined by Agency and paid to Contractor as soon as reasonably possible.

The signature on the General Information page indicates acceptance of these assurances.

Program Authority: PUBLIC LAW 98-524, Title II

K. If Agency determines that Agency is due a refund of money paid to Contractor pursuant to this contract, Contractor shall pay the money due to Agency within 30 days of Contractor's receipt of written notice that such money is due to Agency. If Contractor fails to make timely payment, Agency may obtain such money from Contractor by any means permitted by law, including but not limited to offset, counterclaim, cancellation, termination, suspension, total withholding and/or disapproval of all or any subsequent applications for said funds.

L. In the event of loss, damage or destruction of any property owned by or loaned by Agency while in the custody or control of Contractor, its employees, agents, consultants or subcontractors, whether the property is developed or purchased by Contractor pursuant to this contract or is provided by Agency to Contractor for use in the contract project, Contractor shall indemnify Agency and pay to Agency the full value of or the full cost of repair or replacement of such property, whichever is the greater, within 30 days of Contractor's receipt of written notice of Agency's determination of the amount due. If Contractor fails to make timely payment, Agency may obtain such money from Contractor by any means permitted by law, including but not limited to offset or counterclaim against any money otherwise due to Contractor by Agency.

M. In the conduct of the contract project, Contractor shall be subject to Texas State Board of Education policies, procedures, rules and regulations pertaining to this contract and the contract project, and to the laws of the State of Texas governing this contract and the contract project. This contract constitutes the entire agreement between Agency and Contractor for the accomplishment of the contract project. This contract shall be interpreted according to the laws of the State of Texas except as may be otherwise provided for in this contract.

The signature on the General Information page indicates acceptance of these assurances.

MINUTES
STEERING AND ARTICULATION COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

February 22, 1989

The Steering and Articulation Committee members met for the first time to begin developing plans for implementation of an Articulated Model 2+2 Electronics program between Gainesville High School and Cooke County College. The meeting was held in the Faculty Lounge of Cooke County College.

MEMBERS PRESENT: Dr. Luther Bud Joyner, Mr. Charles Uselton, Mr. Joe Shults, Mr. Jack Smith, Mr. Whitten Williams, Mr. Tom Loftin, Dr. Themi Valentine, Dr. Kenneth Washburn, Dr. Doug Keenan, Ms. Margaret Duncan, Dr. Dale Alsup, Mr. Clyde Yeatts, Mr. Jim Fletcher, Ms. Patty Gilbert, Ms. Greta Miller, Mr. Frank Fuller, Mr. Bil McCarley, Mr. Mike Martin, Ms. Jo Anne Smith, Mr. George Pavelek, Mr. Barr Payne, and Mr. Jim Calhoun.

MEMBERS ABSENT: Mr. Thomas J. Risinger, Mr. Eduardo Gaytan, Mr. Carl Smith, Mr. Terry Tuck, an Mr. Glenn Stockard.

I. WELCOME

Dr. Bud Joyner, President of Cooke County College, and Mr. Charles Uselton, Superintendent Gainesville Independent School District welcomed the members. All members were introduced an dinner served. After dinner, Joe Shults briefed the committee on the 2 + 2 Project. Handouts about th project and other material were given to each member in the form of a packet.

II. SELECTION OF A CHAIRMAN

Mr. Shults explained that a chairperson needed to be chosen and agreed upon by the committees. motion was made by Frank Fuller for Mr. Shults to be the chairman of both the Steering and t Articulation Committees. The motion was seconded by Jim Fletcher and the motion carried.

III. DISCUSSION OF 2+2 CONCEPT

Whit Williams said he and other administrators are convinced a 2+2 program can be successful.

Dr. Ken Washburn expressed concern for the student who did not go to Gainesville High School b wants to take the electronics program at CCC.

It was explained by Mr. Shults that this would be possible because everything offered at the hi school would also be offered at the college for students who come from high schools where electronics not offered. If a prospective student has had electronics previously, that person would be given t opportunity to test out of the class commensurate with the student's competency. He/she can then go the next class in the sequence.

Dr. Washburn asked if there would be two programs, one each at the high school and college, would there be only one facility for both.

Mr. Williams explained the 2+2 concept and that offerings would be at both the high school and t college so as to be able to cover all possibilities.

Dr. Joyner explained that several high schools in the CCC service area would possibly be interested in becoming involved in the 2+2 concept. The project is currently being funded for GISD and CCC, but the concept can be expanded to other ISD's within a college service area.

IV. COMMENTS FROM PEOPLE OF INDUSTRY

Mr. Williams asked the industry representatives to present their feelings on the 2+2 project and concept.

Terry Tuck said he was impressed with the breadth and depth of the offerings of the 2+2 program.

George Pavelek said competency based curriculum will help marketability of students and will provide graduates of this program a better opportunity to articulate their strengths in a language an employer can understand.

Barry Payne said some of his employees have expressed an interest in electronics and this type program would be good for any industry.

Mr. Williams suggested a person may be interested in pursuing a four-year degree plan after his time at CCC, and that he could . This is 2+2+2.

Mr. Pavelek said 2+2 downward should be considered. Starting early in high school or in middle school in getting people interested in the "world of work" could be beneficial. When people find out what they are doing is not what they want, they may retrain. This is expensive. Challenge business and industry to open their doors to young people for field trips so they can see what goes on in the "world of work". This could help them make up their minds as to what they want to do.

V. NEED FOR SUCH A PROGRAM

It was explained by the chairman that a need for a program in electronics with the 2+2 concept should be determined. It was agreed that a need for this type of program and this type of concept has a need the CCC service area based on knowledge of the business and industry representatives presen based on the employment survey conducted within Montague, Cooke, and Denton Counties.

An additional survey conducted by Mr. Shults stated that a nation-wide survey he prepared conducted for Northern Montana College clearly indicated that there is a need for an associate degree for electronic technician on a nationwide basis.

Mr. Shults also added that an associate degree is the beginning of a professional career and as graduates may find it necessary to relocate.

Mr. Shults suggested we make our commitment to formalize and establish a need for the electronics program and the 2+2 concept.

Dr. Joyner asked the chairman which of the four proposed degree plans within the packet did project staff support the strongest.

Dr. Therril Valentine suggested a calculus course be included in the proposed Electronic Engineering Technology program. The chairman explained that the proposed programs were open to modification by committee members as deemed appropriate.

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Mr. Pavelek suggested a look at engineering schools to see what they do and modify one of the proposals for a 2+2+2 concept to be able to maximize the program for the student who wants to go on to the four-year school.

Mr. Fuller suggested a full year of calculus would not be too far out of line for this type of program.

Mr. Tuck said calculus itself may be too much for this type of program. Instead, have a survey course with different aspects of math.

Mr. Shults suggested Electronics Technology and Electronics Engineering Technology be adopted by the committee with further emphasis on Manufacturing Technology and Electro-Mechanical Technology at a later time.

Mr. Payne made a motion to adopt Electronics Technology and Electronics Engineering Technology now, and consider Manufacturing Technology and Electro-Mechanical Technology at a later time. Motion was seconded by several. The motion carried.

VI. AT RISK STUDENTS IN 2 + 2

Dr. Washburn asked about dropout students.

Mr. Shults explained that 75% of high school students know they are not on a college academic track and are going to get very little value from high school. Perhaps this program can help.

Dr. Joyner stated: "If we have low expectations we can expect low expectations. However, with higher expectations the program will work." Dr. Joyner then asked for input from counselors.

Greta Miller said there are eighth graders that would be interested in a program such as this.

Margaret Duncan said high school students are not motivated for a program like this. They have no need or drive. Also, they lack the math background leading to high attrition.

Mr. Williams said it would be beneficial to inform students as far back as the seventh grade that program exists for them in high school. To prepare for it, they need to take math and science course between now and their entry time into high school.

Mr. Pavelek said students will look for reasons to stay in school, and to stay with a program that the know will eventually satisfy their expectations.

Mrs. Duncan said that students presently identified as "at-risk" would not go into this program at this time, but as times change, these students may change also.

Mr. Shults said this program is a good program and believes it will be good for students. "At-risk students are not necessarily failures; they are not motivated. This program will help that type of "at-risk student.

Mrs. Duncan reiterated support for the program, and that there is a place for the program in the high school, but the "at-risk" students need to be examined.

Dr. Joyner concurred with Mrs. Duncan's concern for the "at-risk" student. There may be program that are more suitable to an "at-risk" student. If first year attrition could be identified as suggested by Dr. Valentine, then this concept could be transferable to other programs.

Mrs. Duncan said, even if a high school student did not elect to go to college, these 2+2 program courses could satisfy the electives for high school graduation and at the same time satisfy their curiosity.

Mr. Shults added that the students Mrs. Duncan alluded to would be more employable for ~~been~~ having taken the 2+2 program courses in high school if he/she chooses not to continue at college.

Tom Loftin pointed out that there are two different definitions for "at-risk": (1) a high-achiever, ~~goo~~ Good student who fails somewhere along the line, and (2) the student who has failed all along the way throug high school. The grant to support this program is aimed at the better student who chooses not to go to college.

Mr. Williams said that junior college is a good investment economically for local high school graduates.

Dr. Joyner pointed out that these programs cannot be approved as transfer curriculum. They must be technical courses. We are not permitted to allow this type of program to be on a parallel with a universal program.

VII. CLOSURE

Mr. Shults explained that two gentlemen, one from Texas Education Agency and another from the Texas Coordinating Board were unable to attend the meeting. Also, there are some administrative requirements dictated by law that the project staff needs to work out. However, input on the content of the curriculum is what the committee should work on.

A copy of the curriculum survey was discussed for course competency requirements. A date was Set for return of the survey for March 1. A second committee meeting was set for 7:00 PM, Wednesday March 8th. The dates were set arbitrarily for completion, incorporation, and development of curriculum. Should anyone care to make necessary changes, time could be allowed up to the time we submit the final version of this project to the Coordinating Board and TEA.

Mr. Shults thanked each individual for attending and that the project staff would work diligently incorporate any suggestions.

The meeting was adjourned.

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MINUTES
STEERING AND ARTICULATION COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

March 29, 1989

The Steering and Articulation Committee members met March 29, 1989 to continue development plans for implementation of an Articulated Model 2 + 2 Electronics program between Gainesville High School and Cooke County College. The meeting site was the Gainesville High School Cafeteria and Library.

MEMBERS PRESENT:	Dr. Luther Bud Joyner, Mr. Charles Uselton, Mr. Joe Shults, Mr. Jack Smith, Mr. Whitten Williams, Mr. Tom Loftin, Mr. Thomas Risinger, Mr. Eduardo Gaytan, Dr. Therril Valentine, Dr. Kenneth Washburn, Dr. Doug Keenan, Ms. M[illegible]ret Duncan, Dr. Dale Alsup, Mr. Clyde Yeatts, Ms. Patty Gilbert, Ms. [illegible] Miller, Mr. Frank Fuller, Mr. Bill McCarley and Mr. Glenn Stockard.
MEMBERS ABSENT:	Mr. Jim Fletcher, Mr. Carl Smith, Mr. Mike Martin, Ms. Jo Anne Smith, Mr. Terry Tucker, Mr. George Pavelek, Mr. Barry Payne and Mr. Jim Calhoun.

I. WELCOME AND MINUTES

Mr. Joe Shults welcomed the members and dinner was served. After dinner members were asked to review the information packets and examine the minutes from the last meeting. The minutes were read and approved as read.

II. INTRODUCTIONS

Mr. Whitten Williams introduced Mr. Eduardo Gaytan, Representative of the Texas Coordinating Board of Austin, Texas. Mr. Tom Loftin introduced Dr. Thomas Risinger, Representative of the Texas Education Agency in Austin, Texas. Mr. Shults introduced Mr. Glenn Stockard, Representative of Tetra Pak of Denton. All are members of the Steering Committee.

III. COMMITTEE ASSIGNMENTS

Committee assignments were discussed and individual committees were instructed where to meet for the business meeting. The joint business meeting was adjourned.

MINUTES
ARTICULATION COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

March 29. 1989

The Articulation Committee met in the Gainesville High School Library.

MEMBERS PRESENT: Dr. Luther Bud Joyner. Mr. Jack Smith. Ms. Margaret Duncan. Ms. Patty Gilbert. Mr. Frank Fuller. Ms. Greta Miller. Mr. Clyde Yeatts. Mr. Bill McCarley. Mr. Tom Loftin and Dr. Thomas Risinger.

I. STAFF ACTIVITIES

Mr. Jack Smith stressed the importance of the committee and its input. An updated report of activities was given. noting the competency list has been compiled from the survey of the Educational and Industrial Board members. A good representation enabled staff to produce the competence list requirements of skills applicable to the Associate of Applied Science Degree in Electronics Engineering and Electronic Technology.

II. PROGRAM EVALUATION

The proposed list of courses EL 1103. DC Circuit Analysis; EL 1203. AC Circuit Analysis; and EL 1303. Solid State Electronics. plan to be offered at High School. The remainder of the list is courses to be offered at the college. The same competencies will be met at both the High School and Cooke County College. There should be no problem with these three courses being articulated. Students should have a pre-algebra background. In comparison of the two proposed plans. Electronics Technology and Electronics Engineering Technology, the twelve Electronics courses are the same. The difference is in the existing general education courses.

III. INSTRUCTIONAL RESOURCES

Instructional Resources refers to the Technical Math. (Programmed Math book) Mr. Smith asked if students can keep the book and write in it. Mr. Bill McCarley said it would be possible if the school bought the books. Margaret Duncan asked if there were funds to buy consumable books. Mr. McCarley said there would be after the first year. It would depend on how many high schools are offering this course under Chapter 75. Mr. Frank Fuller discussed Chapter 75 but didn't think it would be referring to the same Tech Math.

Dr. Joyner discussed dual credit. With High School certifying essential elements. the college can offer the same course. Students can receive dual credit and certify as a college course with concurrent enrollment. Mr. Jack Smith recommended Technical Algebra and Technical Trigonometry for dual credit for 3 or 6 hours. Clyde Yeatts and Patty Gilbert said these courses could not be covered by one semester. Minimum of 10th grade entry level would be required. Frank Fuller said this would replace Algebra I. Mr. McCarley said students with only pre-algebra might have a difficult time through the course.

IV. SUB COMMITTEE TO IDENTIFY EQUIPMENT AND FACILITIES

Mr. Smith said Lab-Volt (vendor) will be in Gainesville at the Holiday Inn on April 11th at 9:30 AM. Basic costs will be offered at this meeting. Three other vendors are also wanting to share competitive prices. Mr. Smith and Mr. Shults are going to ask a sub-committee to visit various facilities to observe upgraded electronics programs. Possibly videos could be made and shown at a future meeting.

V. STOP OUT OPTIONS FOR STUDENTS

Dr. Joyner said when students reach the sophomore level with only the need for 6 to 9 courses to complete the program, employers are offering opportunities for employment for these students. Some night courses will probably be a must. Mr. Fuller asked if this is a recognizable vocational sequence program, that distinguishes between a 2 + 2 and an Articulated program? Mr. Smith discussed some exit level stop out options and job qualifications students can meet. Tom Loftin said some students could qualify for some occupations and distributed a list describing employable options. Dr. Joyner said Stop Out Certificates for college level can be used.

Mr. Loftin said College Trig and College Algebra would be equivalent to Honors Algebra II and College Trig the same as Honors Trig. Mr. Smith gave the Tech Math books to Mr. Yeatts to review.

Mr. Fuller defined 2 + 2 and Articulation agreements and noted articulation agreements are not dual credit.

VI. TASP TEST

TASP test has to be taken before any student can enroll for dual credit.

VII. OFFICIAL DEGREE PLAN

Mr. Smith said the student must initiate an official degree plan with a counselor at the college. It was also suggested that it would be a good idea to initiate it in High School.

VIII. PROGRAM PERSONNEL MEETING

Personnel will have a meeting at least once a semester.

IX. TRACKING SYSTEM

Dr. Joyner discussed Operation Lone Star. It's a tracking system for a five year time period after the student has graduated.

X. ADJOURNMENT

Mr. Smith said members will be notified of the next meeting date by mail. The meeting was adjourned.

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MINUTES
STEERING COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

March 29, 1989

MEMBERS PRESENT: Mr. Joe Shults, Mr. Tom Loftin, Mr. Whit Williams, Dr. Therni Valentine, Dr. Doug Keenan, Dr. Kenneth Washburn, Dr. Dale Alsup, Mr. Thomas Risinger, Mr. Glenn Stockard, Mr. Charles Uselton and Mr. Eduardo Gaytan.

I. SURVEY RESULTS

Mr. Joe Shults reported that the results of the survey were impressive although he didn't agree totally with all competencies listed however, he doubted if anyone participating would do otherwise. The competencies have been grouped by the proposed course within the two degree plans. One requirement of the grant being to produce a document of a list of the competencies for the programs. This also serves a secondary purpose of providing a rating scale for each of those competencies. A competency profile is required for the High School System and gives a good identity as to what's taking place with students and helps track and document the fact that the student completed competencies and at what level. The list of competencies and grouping were approved by the committee.

II. ENGINEERING TECHNOLOGY

Mr. Shults reported changes in the 3 digit prefix of EET to a 2 digit prefix of EL to accommodate the CCC Catalog, also some titles and course descriptions were changed. We did include transducers as far as instrumentation.

III. CALCULUS

The floor was opened for discussion of the addition or omission of calculus. After a lengthy discussion by all parties, it was agreed that calculus is a necessity. Introduction to Computers should be dropped because most, if not all, entering the Engineering Technology will have taken a computer literacy course. The stated reason for including the course was that it was a pre-requisite listed in the catalog for CS 1124, Computer Programming-Pascal, which is a desirable course for the program. The consensus of the committee was that the catalog needed updating. The removal of CS 1104, Introduction to Computers, would drop the total Electronics Engineering Technology to 72 semester hours, a desired level. Both degree plans were approved as amended.

IV. EQUIPMENT AND FACILITIES

Joe Shults reported the need to meet with vendors to identify equipment and facilities requiring approximately 4 to 6 hours. This is currently set for Tuesday, April 11th, at 9:30 AM at the Holiday Inn in Gainesville. Mr. Shults proposed to renovate the 200 building and showed a general layout of the electronics portion. He suggested tables, work areas, and transportable equipment to present a professional atmosphere. He then asked for volunteers to serve on this committee to view and recommend equipment and facilities, the first meeting being at the Holiday Inn, April 11th, at 9:30 AM.

V. CLOSURE

Mr. Shults announced his acceptance of two invitations to speak on the 2 + 2 Project. The first being on April 8th, in Oklahoma the second being on April 11th at the Gainesville Kiwanis Meeting in Ganesville, Texas. The business meeting was adjourned.

MINUTES
ARTICULATION COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

MAY 3, 1989

The Articulation Committee members met May 3, 1989 to continuedevelopment plans for implementation of an Articulated Model2 + 2 Electronics program between Gainesville High Schooland Cooke County College. The meeting site was Gainesville High School Cafeteria and Library.

MEMBERS PRESENT: Mr. Whit Williams, Mr. Charles Uselton, Mr. Joe Shults, Mr. Jack Smith, Mr. Tom Loftin, Mrs. Margaret Duncan, Mr. Clyde Yeatts, Ms. Greta Miller, Mr. Mike Martin, Mr. Bill McCarley, Ms. Jo Anne Smith, Mr.George Pavelek.

MEMBERS ABSENT: Dr. Luther Bud Joyner, Mr. Thomas J. Risinger, Mr. Eduardo Gaytan, Dr. Dale Alsup, Ms. Patty Gilbert, Mr. Frank Fuller.

I. WELCOME AND MINUTES

Dinner was served in the cafeteria at 7:00 pm. Mr. Joe Shults welcomed members and informed them of packets containing minutes from the last meeting of March 29, 1989, the Draft of Student Assessment, Student Survey Request, Articulation Agreement, and Position Vacancy Notice. The minutes were read and approved as read.

II. STAFF ACTIVITIES

Mr. Shults informed members of the Position Vacancy Notice for the Instructor of Electronics. He also informed members of the survey being conducted by Cooke County College to the public thru local newspapers to document interest in the electronics program. He requested members to take additional copies and distribute them. Mr. Whit Williams stressed the need for the documentation for the Texas Coordinating Board. Mr. Charles Uselton asked if there had been a good reply. Mr. Shults said there was a good sampling but there was a need for more documentation. He also informed members of two local industries showing interest, Unimax and Andrews Corp. for their employees.

Mr. Shults informed members that much of the final document is now completed or near completion. Four individuals specified in the grant are due May 22 thru May 26 to evaluate the program. These individuals are administrators who are administrating technical vocational programs at divisional levels within the state. Three of these members have been involved with articulation programs in other schools.

III. INDUSTRY SUPPORT

Mr. Shults informed members of a need for letters of support from industries in this region. Any help from committee members would be appreciated in providing these letters of support by May 15, 1989.

IV. STUDENT ASSESSMENT

Mr. Shults informed members of the Student Assessment Draft in their packet compiled by Dr. Jerry Moorman of the University of North Texas. Dr. Moorman's recommendation was the MESA System. If this instrument is not possible to secure, an acceptable substitute would be the GATB. The MESA is a criteria based tool and identifies individuals who have the aptitude for the program.

Mr. Williams informed Mr. Shults and committee members the purchase of the MESA System is already in process and should be completed by the end of the summer.

V. DISCUSSION OF PROPOSED ARTICULATION AGREEMENT

Mr. Shults read through the contents of the Articulation Agreement with committee members. Special emphasis was placed on Articulated Credit and Concurrent Credit the difference being, Concurrent Credit requires no tuition or fees with post-secondary credit being held in escrow until the participating student has completed 12 semester hours at CCC. Articulated Credit does require tuition and fees payment to CCC. The student has two options, one requires payment as the credit is earned and the other requires the credit be held in escrow until the student has completed high school and payments have been made. Under both options the credit will be available for transfer immediately after payment of applicable tuition and fees to CCC.

Mr. Shults then discussed the Articles of Agreement between Cooke County College (CCC) and Gainesville High School (GHS) with the committee members. Then the discussion went on to the subject of how the student earns credit and when and if a student has to pay for it and under what circumstances the student has to pay.

The precedence has been set at Leander High School and Austin Community College. Mr. Charles Rouse, Principal of Leander High School came to Cooke County College on April 21, 1989 and met with governing bodies and essential personnel of CCC and GHS. Mr. Rouse informed members that Leander High School students' credits were held in escrow until the students had completed the prescribed number of hours at Austin Community College. Those hours were then transferred to the college and became an official part of the student record.

Mr. Shults explained to members that Dr. Luther Bud Joyner has asked Dr. Eddie Hadlock to contact the Registrar at Austin Community College and Leander High School to inquire as to how funding arrangements were made.

Mr. Williams felt that if a student has taken a course in high school being equivalent to the college course, its wrong to hold the credit until its paid for when in essence it was paid for in high school by the taxpayers.

Mr. George Pavelek also agreed that the student should not be penalized: this being the purpose of the Articulation Agreement.

Mr. Uselton asked about items 4 and 5, students paying fees at CCC. Mr. Shults explained the difference between the two items of Concurrent Credit and Articulated Credit.

4. Students will not be charged tuition or fees for *articulated credit* earned under this agreement After successfully completing six hours and at the student's request, the transferred articulated credit will be recorded on CCC's official records..

5. Students enrolling for *concurrent credit* must meet all provisions of CCC's Early Admission program, and must pay applicable tuition and fees at registration.

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Mr. Shults said these two agreements gives students the opportunity to accumulate valid college credit for valid college courses.

Mr. Loftin asked, "Why is credit held in escrow?"

Mr. Shults explained this is the only vehicle available for holding.

Mr. Loftin expressed personal reservations concerning credit in escrow. There was a lengthy floor discussion on concurrent and articulated credit by committee members. He also asked if Item 16," credit earned at GHS under this agreement is valid and transferrable to CCC for a period of five years from the date of a student graduation from GHS", is a state requirement?

Mr. Williams explained the thinking behind the five years. If a student takes the courses and then lays out of school five years, the chances are the student will not retain the skills and knowledge to go on in the program.

VI. APPROVED ARTICULATED/CONCURRENT CREDIT COURSES

Mr. Loftin asked if College English was left off on purpose on item B page 7.

Mrs. Duncan explained to committee members that if College English is offered, the student should have the opportunity to have articulated credit or concurrent credit. Mr. McCarley agreed.

Mr. Loftin reminded members that in the previous meeting the discussion was to have College Algebra and College English for two semesters and College Trig.

Mr. Shults agreed that College English (1043 &1053) should be included in the list of approved credit courses.

Ms. Greta Miller inquired about technical writing.

Mr. Shults said Technical Writing is included in the Electronics Engineering Degree plan but not in the Electronics Technology plan.

Mr. Pavelek stated that six hours of english is required before Technical Writing can be taken.

Mr. Loftin asked why Economics was not a part of the program. Mr. McCarley said Economics can still be taken under dual credit.

Mr. McCarley said Economics can still be taken under dual credit.

Mr. Shults stressed the fact of 72 hours limit for the Associate of Applied Science degree plan.

Mr. Williams reminded members to avoid the continued addition of hours of technical courses to the degree plan until it becomes more than a 2 year plan. The state is more likely to approve a 66 hour degree plan.

Mr. Loftin asked for an opinion from the other secondary administrators if they could accept this articulation agreeement.

Ms. Jo Anne Smith said, "I think so."

Ms. Greta Miller also agreed.

Mr. Loftin said we are developing a model program for the state and it is imperative that we assure the ability of other administrations to model after this program.

Mr. Williams agreed on the importance of the model program being usable by other districts.

Ms. Smith asked if Leander High School wasn't the model for the state.

Mr. Williams said no, that Leander is just giving high school graduates who go to Austin Community College and take 12 hours, credit for 12 hours from their high school experience. This small amount of pioneering has recieved a multitude of interest.

Ms. Smith questioned the fact that the students at Leander High School are not paying for the 12 hours at high school.

Mr. Williams confirmed this.

Ms. Smith then said it was her understanding that the articulation agreements that Lewisville ISD has with Dallas Community College and TSTI in Waco is simply not repeating something you had in high school, therefore not paying for it. This being the reason the legislature mandated articulation.

Mr. Williams said another purpose is to assure a continuing quality program beginning at an earlier age so career objectives could be met without floundering around.

VII. ELIGIBILITY

Ms. Duncan asked when and how they would go about administering the assessment test.

Mr. Shults explained this is administrative in nature and would depend on if Cooke County College made purchase of the MESA test. The exact date has not been scheduled but needs to be done in ample time to determine the cut-off time in enrollement.

Mr. Williams stressed that the test would be an administrative matter.

Mr. McCarley said at this point testing would be either now or after the fact.

Mr. Williams said in this case, we will be testing after the fact, but that does not mean the test will continue in this manner.

Mr. Loftin asked about Item B Page 8. Eligibility in regards to grade level 10 or above which may be a problem with certain courses because some courses cannot be taught in the 10th grade.

Mr. Shults explained that alot of effort was made in developing the degree plan with the assumption that Tech Algebra would be taught before DC and Tech Trigonometry before AC. " You're doing the students a diservice if you don't."

Mr. Loftin agreed but stressed the Agency would not overlook the fact that technical courses can not be taught before the 11th grade.

Ms. Duncan asked if these students could be labeled "at risk".

Mr. Loftin expressed concern about specifying grade levels for these courses in question.

Mr. Pavelek suggested putting those perimeters on those two courses only.

Mr. Loftin said when this is submitted to the agency it needs to fall within the master plan of vocational education and needs to specify that some courses will be 11th grade entry level only.

Mr. Williams said that there may be some dispensation with this being a model program.

Mr. Loftin said it wouldn't be after its open to the general public.

Ms. Smith made the suggestion to asterisk the courses to be taken in the 10th grade with others to be taken in the 11th grade.

Mr. Loftin said with those changes made the articulation could be approved. He then made the motion to accept the Articulation Agreement.

Mr. McCarley seconded the motion and all committee members approved.

VIII.CLOSURE

Mr. Shults informed members that the 2 + 2 Project goes before the Cooke County Board of Trustees Monday, May 15th. He also informed members of $115,000. available for the renovation of the 200 building at Cooke County College.

Three consultants will be coming in to formulate and look at proposals on Facilities and Equipment in addition to the sub-committee.

Mr. Pavelek explained to committee members how the industries use this type of program in terms of equipment and facilities. The requirements being to have:

1. a quality program
2. quality equipment to attract the student
3. a laboratory setting to show organizations that may be interested in your graduates

He stressed that these considerations be kept in mind in making these decsions. He also suggested considering areas for computer simulation of lab work that might in the long run save your hardware cost and give lab equipment that could be multi-disciplined.

Mr. Shults informed members of the impressive vendor presentation held on Friday, April 28th. Also there will be one more meeting of the committee, a 2 + 2 Project signing party.

Mr. Williams made the motion that the meeting be adjourned. All members approved.

MINUTES
FACILITIES AND EQUIPMENT SUB-COMMITTEE MEETING
2 + 2 ELECTRONICS PROJECT
GAINESVILLE HIGH SCHOOL AND COOKE COUNTY COLLEGE

May 24, 1989

The Facilities and Equipment Sub-Committee members met May 24, 1989 for final discussion of plans for equipment and facilities of the 2+2 Electronics Project. The meeting site was the Gainesville High School Library.

MEMBERS PRESENT:	Mr. Joe Shults, Mr. Jack Smith, Mr. Charles Uselton, Mr. Tom Loftin, Mr. Glenn Stockard, and Mr. Whitten Williams.
MEMBERS ABSENT:	Dr. Luther Bud Joyner, Mr. Bill McCarley, Ms. Margaret Duncan, Ms. Patty Gilbert, Mr. Tom Woods, Dr. Dale Alsup, Dr. Doug Keenan, Mr. Clyde Yeatts, Mr. George Pavelek, and Mr. Joe Ware.

I. WELCOME

Mr. Joe Shults welcomed members and informed them of the packets containing the Program Support Equipment Priority One Recommendation and Capital Outlay.

II. STAFF ACTIVITIES

Mr. Shults informed members that four major vendors had displayed equipment, recommendations and proposals Also three additional vendors were contacted. The staff has produced two proposals for the committee members to approve. Feedback from the field of industry included a letter of support from Mr. Dick Zielinsky of Saturn Corporation of General Motors.

Consultants used were Mr. Les Stewart, Dr. Doug Keenan, and Dr. Kenneth Washburn.

Mr. Shults noted that all vendors had very good proposals and from a practical stand point, he recommended the committee not use strictly one vendor. It would be more economical to both institutions (CCC and GISD) to break equipment between vendors.

The major contributor is NIDA Corporation. It's open-ended and computer aided. This company is world wide and their product is primarily developed for military purposes.

Mr. Shults noted that all equipment viewed will be serviceable, noting that Heath-Kit equipment would be on the low end of the spectrum. Mr. Shults noted that one board member of CCC Trustees noted to Dr. Joyner, "You are going to use State-of-the-Art equipment, aren't you?", in their meeting of May 15, 1989.

Mr. Shults recommended 5 manual systems and 1 computer aided instructional system.

There was further discussion of other companies' proposals for equipping the program. Discussion also included the possibility of a 3 year lease purchase agreement with NIDA.

Tom Loftin asked about Principles of Technology. "Is the $24,000 for a 1 or 2 year plan?"

Mr. Jack Smith informed members that Principles of Technology is a 2 year plan, and the $24,000 is for one years worth of equipment.

Conclusion of members discussion was Principles of Technology will not be offered within 1989-1990 school year.

Discussion revolved around the cost for the college and the high school to start up the program.

Tom Loftin felt the cost at the high school was fair.

Whit Williams felt the cost at the college was more than could be afforded. Consideration was given to revising the proposal for the 2nd year at the college in an effort to reduce the cost. It was pointed out that grant money is available.

Glenn Stockard commented on changes etc: " Microprocessors change most frequently but is basically the same throughout. There is not any change in theory, changes occur in the applications of the theory. There is nothing in the proposal that will out-date itself within the foreseeable future."

Consideration was given as to how to implement the program at the central facility (GHS) with the college using the central facility for the first year. Equipment needs for the first year at the college using high school facility was discussed.

In conclusion, Mr. Shults recommended that promotional literature for the 2+2 Electronics Program be developed by the Public Relations office at CCC.

MINUTES - REGULAR MEETING

BOARD OF TRUSTEES
COOKE COUNTY COLLEGE

May 15, 1989

The Board of Trustees of Cooke County College met in regular session on Monday evening, May 15, 1989. The meeting was held in Room 154 of the Student Activities Center at 7:00 p.m. Board Chairman, Mr. Urban J. Endres, presided for the meeting. Mr. Neil Tibbets, Secretary, offered the invocation.

MEMBERS PRESENT: Urban J. Endres, Chairman, Dr. Milton Dickson, Vice Chairman Neil Tibbets, Secretary, Wendell Protter, Alan Ritchey, and Karon Sullivant.

MEMBERS ABSENT: Don Gregory

ADMINISTRATORS PRESENT: Dr. Luther Bud Joyner, President, Whitten Williams, Tom Woods, Dr. Eddie Hadlock, Linda Mast and Rodger Boyce

VISITORS PRESENT: Eric Williams, Editor, Gainesville Daily Register, James M. Brooks, Vice President, Southwest Securities, Inc., Jimmy L. Inman, Architect, Joe Shults, Coordinator, 2+2 Electronics Technology Development Project and Jack Smith, Instructor/Coordinator,2+2 Electronics Project, Gainesville ISD

DISPOSITION OF MINUTES OF PREVIOUS MEETINGS

Dr. Dickson made a motion that the minutes of the meeting of April 10, 1989, be approved as presented. Mrs. Sullivant seconded the motion and it carried unanimously.

Minutes of the meeting of May 8, 1989, were unanimously approved as presented following a motion by Mr. Tibbets and seconded by Mr. Protter.

NEW BUSINESS

[1776] APPROVE BILLS

Dr. Dickson made a motion to approve the current operating fund bills in the amount of $186,274.25, and the auxiliary bills in the amount of $48,631.42. Mr. Tibbets seconded the motion and it carried unanimously.

[1777] TRANSFER FUNDS

Mrs. Sullivant made a motion to transfer funds as requested. Mr. Tibbets seconded the motion and it carried unanimously.

The following fund transfers were requested:

General Fund to Current Operating Fund (Monthly bill lists less cancelled checks of $1.621.88)	$160.058.47
Federal Grants Fund to Current Operating Fund	$20.165.00
State Scholarship Fund to Current Operating Fund	$ 4.428.00
	$184.652.37

[1778] SECOND READING ON PROPOSAL ON INSTITUTIONAL AIMS AND OBJECTIVES

The revised statement of aims and objectives for Cooke County College for the Southern Association accreditation study were presented to the Board at the March 13 meeting with the understanding that a second reading would be necessary for final approval.

Final revisions from the Committee on Institutional Purpose were presented. Also, Dr. Hadlock presented additional changes to the College catalog for the Board's consideration. Following presentation from the committee and Dr. Hadlock, Mrs. Sullivant made a motion that the Boar approve recommended changes to the catalog and that the institutional aims and objectives becom the official Cooke County College Purpose Statement. Mr. Tibbets seconded the motion. Motion carried by a unanimous vote.

[1779] CONSIDERATION OF ELECTRONIC PROGRAM

Mr. Joe Shults, Coordinator of the 2+2 Electronics Technology Development Project, presente a proposed College Electronics Technology Program. [Copy of the proposed program is attached and made a part of these minutes.]

Following the presentation and a recommendation for approval from the administration, Mr. Ritchey made a motion that the Board approve the program. Dr. Dickson made a second to the motion and it carried unanimously.

Mr. Proffer then made a motion that the Board authorize the administration to enter into a articulation agreement with the Gainesville Independent School District and Cooke County College. Mr. Tibbets seconded Mr. Proffer's motion and the motion carried by a unanimous vote.

This agreement would provide a mechanism through which vocational-technical education programs at Gainesville ISD and CCC will interface, thereby enabling students who have maste agreed-upon task competencies in vocational-technical programs at GISD to receive post-secondary credit at CCC.

[1780] CONSIDERATION OF BIDS ON COMPUTER EQUIPMENT FOR THE REGISTRAR'S OFFIC

As recommended, Dr. Dickson made a motion that the Board approve the purchase of the IBM 8570-121 PS/2 Model 70 386 PC and related equipment with a 2nd Diskette Drive from IBM, the low bidder for the equipment. [Copy of the bid tabulation is attached and made a part of these minutes. Mrs. Sullivant seconded the motion. The motion carried by a unanimous vote.

[1781] CONSIDER SALE OF GENERAL OBLIGATION AND REVENUE BONDS

Mr. James Brooks, Financial Advisor for the College, made a presentation regarding sale bonds. Following his discussion, Dr. Dickson made a motion that the Board accept bids for the sal all general obligation and revenue bonds, with bids to be considered by the Board on June 12 12:00 noon. Mrs. Sullivant made a second to the motion and it carried by a unanimous vote.

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[1782] REPORT ON CONSTRUCTION

Mr. Jimmy L. Inman, Architect, announced that the final inspection of the renovation project in the 100 building had just been completed. He recommended acceptance of the work following a few minor adjustments.

[1783] APPROVAL OF AUCTIONEER

Following approval recommendation by the administration, Mr. Proffer made a motion that the College use the services of Mr. Mike Jones as the auctioneer for the next College auction to be held in late May or early June. Mr. Tibbets seconded the motion. Motion carried unanimously.

PRESIDENT'S REPORT

[1784] REPORTS

(1) The College received notice that a nursing grant has just been awarded in the amount of $30,000 to be used for a simulation lab.

(2) The Cooke County Pep Rally will be held on the College campus on Friday evening, May 19. This will be the third annual rally presented by students from South Plains College and a large crowd is expected for the event.

(3) An updated legislative report was given by President Joyner.

(4) Mrs. Sullivant recommended that a letter be sent from the Board members to "Friends of Cooke County College" in appreciation of the hard work and financial assistance given during the bond issue campaign. The Board members agreed.

ADJOURNMENT

There was no further business and the meeting was adjourned.

GAINESVILLE INDEPENDENT SCHOOL DISTRICT

MINUTES OF REGULAR MEETING - MAY 10, 1989

The Gainesville Board of Education met in regular meeting on Wednesday, May 10, 1989 at 6:00 p.m. in the school Administration Building, 1201 Lindsay Street, with the following members present: June McCain, James Marshall, John Morris, Frank Lorne, Larry Claxton, Mike Otts, and Roger Martin. Others present were Charlie Uselton, Tom Loftin, George Burrow, Earl Husfeld, Eddie Green, Nancy Fisher, Skip Rigsby, Mary Moore, Sharon Keeling, Karen Treat, and patrons of the district.

President Morris called the meeting to order at 6:00 p.m.

Mr. Lorne moved and Mr. Martin seconded a motion that the minutes of the April 25, 1989 meeting be approved as presented. The motion carried unanimously.

Mr. Billy Miller, teacher at Gainesville High School, requested that the board restore the teacher supplement, professional days and local sick days for the 1989-90 school year.

Mr. Rigsby, Assistant High School Principal, introduced Keith Rigsby, 1988-89 Student Body President. Mr. Morris presented Keith Rigsby with a plaque.

Mr. Rigsby introduced the 1989-90 Student Body President, Chris Lewis.

The board discussed the hiring of a delinquent tax attorney and no action was taken at this time.

Mr. Loftin reported on the TEAMS test report data.

Discussion of the roof problems and addition at Edison Elementary School was held. Information was presented by Mr. Uselton, Mr. Burrow, and Mr. Husfeld. Mr. Martin moved and Mr. Claxton seconded a motion authorizing Mr. Uselton to hire an architect to proceed with plans and specifications to replace the roof at Edison Elementary School. The motion carried unanimously.

Mr. Martin moved and Mr. Claxton seconded a motion that plans and specifications be drawn up for additions to Edison Elementary School. After discussion, the motion was withdrawn.

The board authorized Mr. Uselton to check with an architect to determine the approximate cost of developing plans and specifications for classroom additions to Edison Elementary and report back to the board.

Mr. Husfeld introduced Jo Anne Morrison, new Gainesville ISD food service director. Mr. Coker presented a status report of Gainesville ISD food service operation as of April 30, 1989.

The board discussed the Employee Appreciation Program scheduled for June 3, 1989, 10:00 a.m. at the Gainesville Middle School Auditorium. The program will have the same basic format as last year's program.

Mrs. McCain moved and Mr. Martin seconded a motion to approve the 1988-89 Career Ladder assignments and amount of funding as presented by the administration - Level 3 - $3,034.62; Level 2 - $1,517.31. Stricter criteria was applied. The motion carried unanimously.

Mrs. McCain moved and Mr. Lorne seconded a motion approving the restructured guidelines for admission into Gainesville Middle School Honors Class as presented by principal Eddie Green. The guidelines were approved for one year only. The motion carried unanimously.

Mr. Martin moved and Mr. Marshall seconded a motion to approve the 2+2 Electronics Program Articulation Agreement between Cooke County College and Gainesville ISD as presented. The motion carried unanimously.

Mr. Uselton reported on the following:

Receipt of letter from Tarleton State University concerning Angela Webb.
Receipt of letter from Gary and Jo Glenn, whose children attend Lee Elementary.
Board president and board member training school offered in Austin on June 16-17, 1989.

Mr. Marshall moved and Mrs. McCain seconded a motion approving the lease-purchase of a Collins Super Bantam, 12 seat and two wheelchair position school bus from Bridges-Hemphill Enterprises, Inc. Cash purchase price is $26,339, to be paid with federal monies. The motion carried unanimously.

The board went into executive session at 8:10 p.m. after the president announced its right to do so under Article 6252-17, Section 2(g) to discuss personnel.

The board reconvened in open meeting at 8:40 p.m.

Mr. Marshall moved and Mrs. McCain seconded a motion to increase Glenn Fry's coaching supplement from $1500 to $3400 for 1989-90. The motion carried unanimously.

Mr. Marshall moved and Mrs. McCain seconded a motion that Linda Woods receive a $600 supplement for sponsor of Gainesville High School Yearbook. The motion carried unanimously.

Mrs. McCain moved and Mr. Claxton seconded a motion that Frances Hutcherson be employed full-time for the 1989-90 school year. The motion carried unanimously.

Mrs. McCain moved and Mr. Claxton seconded a motion that the resignation of Melanie Lindsey effective at the close of the 1988-89 school year, be accepted. The motion carried unanimously.

Mrs. McCain moved and Mr. Marshall seconded a motion that Mrs. Selby and Mrs. Pirkey, high school secretaries, employment be extended to 11 months (202 days). The motion carried unanimously.

Mr. Lorne moved and Mrs. McCain seconded a motion that the bills be approved for paymen covering checks numbered 10676 through 10807 from Local Maintenance, and Nos. 659 through 665 from Special Revenue. The motion carried unanimously.

Mr. Marshall moved and Mr. Lorne seconded a motion approving the April, 1989 Financia Statement. The motion carried unanimously.

Mr. Husfeld presented year-to-date and monthly payment recap as of April 30, 1989, as prepared by the office of Joyce Zwinggi, Cooke County Tax Assessor/Collector.

There being no further business, the meeting was adjourned at 8:50 p.m.

Secretary

President

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GAINESVILLE HIGH SCHOOL

ELECTRONICS

SYLLABUS

I. **COURSE**: DC Circuit Analysis

II. **TEXT**: *Basic Electronics*, 5th Edition, GROB, 1984, McGraw-Hill Book Company.
Electricity-Electronics Fundamentals, 3rd Edition, ZBAR and SLOOP, 1986, McGraw-Hill Book Company.

III. **TERMINAL OBJECTIVES**: Upon successful completion of this course of study, each student will have demonstrated mastery of DC circuit analysis laws, theorems, and applications by attaining an overall grade of C or above on written examinations, laboratory reports, and practical examinations. Each enabling objective will define specific bodies of knowledge and/or skills to be learned. The expected competency level for each enabling objective is 100% unless otherwise stated. The evaluation of levels of competencies for each enabling objective will be in accordance with procedures outlined in Section VI & VII of this syllabus. Grades will be awarded based on that procedure.

IV. **ENABLING OBJECTIVES**: Each student will be able to:

1. Read the electrical and mechanical safety rules. Each student is expected to understand and practice good safety while engaged in this program. The level of compliance is absolutely without exception.
2. Define the properties of electrical energy, without the aid of notes, above an accuracy level of 65%.
3. With the use of the periodic table of atomic structure, identify and classify those elements that are useful as conductors, insulators, and semi-conductors with an accuracy of 65%.
4. Be able to identify specific resistor values according to standard electrical industry markings.
5. Be able to use a scientific calculator to perform any and all mathematical computations required in this course of instruction.
6. Be able to express Ohm's Law in all of its mathematical forms.
7. When given drawings of series circuits, be able to indicate the direction of current flow by labeling the components with the correct symbols.
8. Be able to differentiate between linear and non-linear resistors.
9. Be able to recognize the difference between series and parallel circuits.
10. Be able to predict the voltage distribution around selected series, parallel, and series-parallel circuits.
11. Be able to determine quantitative current flows in selected series, parallel, and series-parallel circuits.

12. Be able to compute the power requirements and power distribution of selected series, parallel, and series parallel circuits.
13. Be able to draw the schematic symbols for selected direct current (DC) components that conform to the Institute of Electrical and Electronics Engineers (IEEE) Standard 225.
14. Be able to safely and accurately operate selected DC test instruments.
15. Be able to apply Kirchhoff's Laws in the analysis of DC circuits.
16. Be able to apply the Superposition Theorem to DC circuits with two power sources.
17. Be familiar with the purpose and use of Thevenin's, Norton's, and Millman's Theorems. The level of performance will be such as to invoke each theorem with the aid of the required text and notes.
18. Describe the six methods of producing an EMF (friction, chemical activity, pressure, heat, magnetism, and light).
19. Define volt, ampere, ohm and watt.
20. Identify insulators and conductors.
21. Read meter scales and interpolate meter readings.
22. Identify the ohmic value of resistors using the resistor color code.
23. Identify basic electronic symbols.
24. Use Ohm's Law to solve problems.
25. Define direct current (DC).
26. Define and explain capacitance and inductance.
27. Draw series DC circuits and solve for unknown values using Ohm's Law and Kirchhoff's Law.
28. Draw parallel DC circuits and solve for unknowns using basic laws and circuits rules.
29. Draw series-parallel DC circuits and solve for unknowns using basic laws and circuit rules.
30. Measure volts with a voltmeter.
31. Use an ohmmeter to determine if the resistors are within tolerance according to color code.
32. Measure current with an ammeter.
33. Identify short circuits.
34. Identify open circuits.
35. Construct a series resistive circuit: measure voltage drops, current, resistance, and compute

power.

36. Construct a parallel circuit, measure voltage drops, current, resistance, and compute power.

37. Construct a series-parallel resistive circuit and measure voltage drops, current, resistance, and compute power.

38. Test a fuse.

39. Test a switch.

40. Test a potentiometer.

V. COURSE OUTLINE

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NOTE: The theory section of this syllabus was extracted in part form the required course text, for the convenience of the student.

VI. **METHODS OF INSTRUCTION:**

Methods of instruction will be as follows:

1. Lecture/Discussion
2. Demonstration/Discussion
3. Required Reading
4. Laboratory Experiments and Reports
5. Audio/Visual Aids

VII. METHODS OF EVALUATION:

Evaluation will be competency based utilizing the following tool:

1. Written Examinations
2. Laboratory Experiment Reports
3. Practical Examinations
4. Unannounced Quizzes
5. Daily Observations

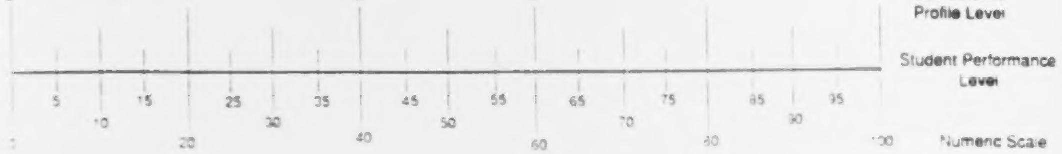
VIII. GRADES:

GRADES: A letter grade will be awarded to each student according to their numeric standing as outlined below:

90 - 100	A
80 - 89	B
75 - 79	C
70 - 74	D
Below 69	F

A students numeric standing will be determined by the following system:

1. All sub elements of the numeric standing will be based on a raw score of 100.
2. All cognative written examinations will be objective.
3. All competency evaluations will be subjective using the completency based weighted scale below:



Major Written Examinations = 50%
Laboratory Experiment Reports = 20%
Major Practical Examinations = 20%
Unannounced Quizzes = 5%
Daily Observation = 5%

Example:

Average mid-term exam and final exam equals 90:	then 90 x .5	=	45
Average lab report grade equals 80:	then 80 x .2	=	16
Average practical grade equals 100:	then 100 x .2	=	20
Average of all unannounced quizzes equals 60:	then 60 x .05	=	3
No deduction for daily observation:	then 100 x .05	=	5
	TOTAL		89

Numeric Score = 89 = B

IX. STUDENT CONDUCT:

1. Students are expected to be prompt, courteous, studios, and honest.
2. Make-up work will be allowed for excused absenced only.
3. Reading assignments are to be completed prior to attending associated lecture and/or laboratory sessions as applicable.
4. Note taking is encouraged, but will not be graded.

X. ADMINISTRATIVE INFORMATION AND/OR REQUIREMENTS:

A. Lecture
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Dates: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Exam: Mo _____ Date _____ Time _____ Location _____

B. Laboratory
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Date: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Practical Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Practical Exam: Mo _____ Date _____ Time _____ Location _____

C. Laboratory Report Schedule

Experiment	Due Date		Experiment	Due Date	
Unit # 1	Mo _____	Date _____	Unit # 7	Mo _____	Date _____
Unit # 2	Mo _____	Date _____	Unit # 8	Mo _____	Date _____
Unit # 3	Mo _____	Date _____	Unit # 9	Mo. _____	Date _____
Unit.# 4	Mo _____	Date _____	Unit # 10	Mo _____	Date _____
Unit # 5	Mo _____	Date _____	Unit # 11	Mo _____	Date _____
Unit # 6	Mo _____	Date _____	Unit # 12	Mo _____	Date _____

D. Instructor:

1. Name: _____________________________

2. Location: Building __________ Room _______

3. Phone: 817/668-7731 Ext: _____

4. Office Hours:

Monday	________	to	________
Tuesday	________	to	________
Wednesday	________	to	________
Thursday	________	to	________
Friday	________	to	________

NOTE: Students are encouraged to visit during office hours, and other times of opportunity, to resolve problems of any nature.

GAINESVILLE HIGH SCHOOL

ELECTRONICS

SYLLABUS

I. **COURSE**: AC Circuit Analysis

II. **TEXT**: *Basic Electronics*, 5th Edition, GROB, 1984, McGraw-Hill Book Company.
Electricity-Electronics Fundamentals, 3rd Edition, ZBAR and SLOOP, 1986, McGraw-Hill Book Company.

III. **TERMINAL OBJECTIVES**: Upon successful completion of this course of study, each student will have demonstrated mastery of AC Circuit laws, theorems, and applications by attaining an overall grade of C or above on written examinations, laboratory reports, and practical examinations. Each enabling objective will define specific bodies of knowledge and/or skills to be learned. The expected competency level for each enabling objective is 100% unless otherwise stated. The evaluation of levels of competencies for each enabling objective will be in accordance with procedures outlined in Section VI and VII of this syllabus. Grades will be awarded based on that procedure.

IV. **ENABLING OBJECTIVES**: Each student will be able to:

1. Read, understand, and follow the standard safety rules.while in an electronics classroom and/or laboratory. The expected level of performance is absolute without exception.
2. Define the characteristics of capacitors.
3. Explain the charge and discharge characteristics of capacitors verbally and mathematically.
4. With the aid of manufacturer specification sheets, be able to identify specific capacitance rating for selected capacitors.
5. Explain the properties of magnets and the forces surrounding them.
6. Explain the term "magnetomotive force", and its practical uses.
7. Determine the field strength around a magnet mathematically.
8. Define the term "inductance", and its practical application in electronic circuits.
9. Explain and apply Faraday's Law to selected inductors.
10. Differentiate between different types of inductors.
11. Compute and plot charge and discharge curves for selected capacitors and inductors with the aid of the universal time constant chart.
12. Be able to explain the characteristics of a sinusoidal alternating current wave.
13. When given the period of sine wave, determine the frequency of the wave.
14. Identify various types of transformers and predict their output.

15. Differentiate between RMS, peak, peak to peak, and average voltage values.

16. With the aid of selected test instruments, determine the phase relationship between AC generators.

17. Explain the term :"reactance", and its effect on capacitors and inductors, with the aid of phaser diagrams.

18. Identify and explain the occurrence of resonance verbally and mathematically.

19. Differentiate between series and parallel filters.

20. Analyze the interactive effect of AC current in circuits composed of inductors, capacitors, and resistors.

21. Construct and test RC and RL time constant circuits.

22. Define alternating current (AC) and explain its primary advantage over DC.

23. Explain terms related to frequency.

24. Describe inductance.

25. Describe inductive reactance.

26. Describe capacitance.

27. Describe capacitive reactance.

28. Describe how capacitive reactance and inductive reactance affects the voltage and current relationships in an AC circuit.

29. Describe impedance in an AC circuit.

30. Calculate impedance, phase angle and power factor.

31. Describe the basic use and operation of AC test equipment: i.e., "O" scope, AC meters, frequency counters, and signal generators.

32. Calculate the turns, current, voltage, and power relationship for single-phase transformers.

33. Measure AC volts with a voltmeter.

34. Operate a function generator.

35. Determine voltage and frequency with an oscilloscope.

36. Identify basic electronic symbols.

37. Locate and identify and open circuit.

38. Test a transformer circuit.

39. Construct a resonant circuit and determine resonant frequency and bandwidth.

40. Construct and test filter circuit.

41. Test and identify capacitors.

42. Construct series and parallel circuits. Measure voltage drops, current. Calculate impedance, phase angle, and power.

43. Use the oscilloscope to measure waveforms.

44. Use analog multimeters, digital multimeters, oscilloscopes, and frequency counters to analyze the operation of analog and pulse circuits.

45. Calculate characteristic impedance and impedance matching of transmission lines.

V. COURSE OUTLINE

CONTENT

THEORY	LABORATORY
Unit 1 - Capacitors:	Laboratory Orientation:
	1. Materials Location
1. Electrostatic Fields	2. Safety
2. Charging Action in a Capacitor	3. Laboratory Report Requirements
3. Storing Charges in a Capacitor	
4. Discharging a Capacitor	
5. The Farid	
6. Dielectrics	
7. Factors Affecting Capacitors	
8. Voltage Ratings	
9. Types of Capacitors	
10. Capacitors in Parallel	
11. Losses in a Capacitor	
12. Frequency and Capacitance Characteristics	
13. Capacitor Coding system	Experiment — Unit 1
Unit 2 - Magnetic Circuits and Electromagnetism	
1. Permanent Magnets	
2. Magnetic Fields	
3. Magnetic Domains	
4. Magnetism Produced by current	
5. Concentration of a Magnetic Field in a Solenoid	
6. Magnetomotive Force	
7. Magnetic Flux	
8. Flux Density	
9. Magnetic Field Intensity	
10. Permeability	
11. B-H Curve	
12. Hysteresis Losses	
13. Magnetic Circuits	Experiment — Unit 2

Unit 3 - Inductance

1. Inductance Defined
2. Factors Determining Strength of Induced Voltage
3. Faraday's Law
4. Nature of Inductance
5. Counterelecteomotive Force
6. Self-Inductance
7. Types of Inductance
8. Mutual Inductance
9. Inductors in Series or In Parallel
10. Energy Stored in an Inductor — Experiment — Unit 3

Unit 4 – Time Constants

1. Time Constant of RC Circuits
2. Effect of R and C on Charging Time
3. Graphs of Different Charging Times
4. Time Constant T = RC
5. Discharge Current
6. Time Constant of RL Circuit
7. Transient Voltages Produced in an RL Circuit
8. Universal Time Constant Curve
9. Short and Long Time Constants — Experiment — Unit 4

Unit 5 - Sinusoidal Alternating Current

1. Generation of Sine Waves
2. Definition of Cycle
3. Radian Measure
4. Frequency, Angular Velocity and Period
5. Frequency Spectrum
6. Sine Wave
7. The Oscilloscope and Its Use
8. Peak and Instantaneous Values
9. Average Value of Sine Wave
10. Effective or RMS Value of a Sine Wave
11. Relationship of e and i in Resistive Circuits
12. Power in a Resistive Circuit
13. Vectors and Phasers
14. Polyphase Voltages
15. Nonsinusoidal Waves — Experiment — Unit 5

Unit 6 - Inductive and Capacitive Reactance

1. Inductive Reactance
2. Graph of X L
3. X l in Series and in Parallel
4. Phase Relationship of eL and iL.
5. Power in purely Inductive Circuits
6. Inductor Losses
7. Capacitive Reactance
8. Graph of Xc
9. Xc in Series and in Parallel
10. Phase Relationship of ec and ic
11. Power in Purely Capacitive Circuits

Experiment — Unit 6

Unit 7 - Series and Parallel AC Circuits

1. The j Operator
2. Series RL CIRCUITS
3. Phase Angles
4. Series RC CIRCUITS
5. Impedance
6. Z in Rectangular Natation
7. Voltage in Rectangular Notation
9. Z in Polar Notation
9. Ohm's Law for AC Circuits
10. Series RLC Circuits
11. Parallel RL Circuits
12. Parallel RC Circuits
13. Parallel RLC Circuits
14. Power in AC Circuits
15. Power Factor
16. AC Meters
17. Wattmeters

Experiment — Unit 7

Unit 8 - Tuned Circuits and Resonance

1. Definition of Resonance
2. Series Resonant Circuit
3. Calculating the Resonant Frequency
4. Circuit Q
5. Ideal Parallel Resonant Circuit
6. Practical Parallel Resonant Circuit
7. Analysis of Parallel Resonant Circuits
8. Dampening a Parallel Resonant Circuit
9. Resonance Curve
10. Bandwidth
11. Tuning
12. Bandspreading
13. Multiple Tuned Stages

Experiment — Unit 8

Unit 9 - Filters

1. High-pass Filters
2. Loss-Pass Filters
3. Bandpass Filters
4. Band Rejection Filters
5. Constant-k Filters
6. M-derived Filters
7. Phase Shift Networks

Experiment — Unit 9

Unit 10 - Transformers

1. Transformer Types
2. Transformer Principles
3. Voltage and Current Ratios
4. Transformer Losses
5. Core Types
6. Loading Effect
7. Impedance Transformation
8. Autotransformers
9. Isolation Transformers
10. Radio Frequency Transformers

Experiment — Unit 10

Unit 11 - Network Analysis of AC Circuits

1. Vector Algebra
2. Addition and Subtraction by Vector Algebra
3. Multiplication and Division by Vector Algebra
4. Rectangular to Polar Conversion
5. Polar to Rectangular Conversion
6. Impedance of Series Circuits
7. Impedance of Parallel Circuits
8. Equivalent Series Circuits
9. Conductance, Susceptance, and Admittance
10. Series-Parallel Impedance
11. Thevenon's Theorem for AC Circuits
12. Norton's Theorem for AC Circuits

Experiment — Unit 11

VI. METHODS OF INSTRUCTION:

Methods of instruction will be as follows:

1. Lecture/Discussion
2. Demonstration/Discussion
3. Required Reading
4. Laboratory Experiments and Reports
5. Audio/Visual Aids

VII. METHODS OF EVALUATION:

Evaluation will be competency based utilizing the following tool:

1. Written Examinations
2. Laboratory Experiment Reports
3. Practical Examinations
4. Unannounced Quizzes
5. Daily Observations

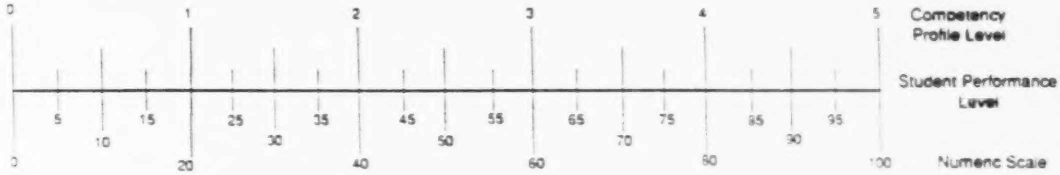
VIII. GRADES:

A letter grade will be awarded to each student according to their numeric standing as outlined below:

90 - 100	A
80 - 89	B
75 - 79	C
70 - 74	D
Below 69	F

A students numeric standing will be determined by the following system:

1. All sub elements of the numeric standing will be based on a raw score of 100.
2. All cognative written examinations will be objective.
3. All competency evaluations will be subjective using the completency based weighted scale below:



Major Written Examinations = 50%
Laboratory Experiment Reports = 20%
Major Practical Examinations = 20%
Unannounced Quizzes = 5%
Daily Observation = 5%

Example:

Average mid-term exam and final exam equals 90;	then 90 x .5	=	45
Average lab report grade equals 80;	then 80 x .2	=	16
Average practical grade equals 100;	then 100 x .2	=	20
Average of all unannounced quizzes equals 60;	then 60 x .05	=	3
No deduction for daily observation;	then 100 x .05	=	5
	TOTAL		89

Numeric Score = 89 = B

IX. STUDENT CONDUCT:

1. Students are expected to be prompt, courteous, studios, and honest.
2. Make-up work will be allowed for excused absenced only.
3. Reading assignments are to be completed prior to attending associated lecture and/or laboratory sessions as applicable.
4. Note taking is encouraged, but will not be graded.

X. ADMINISTRATIVE INFORMATION AND/OR REQUIREMENTS:

A. Lecture
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Dates: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Exam: Mo _____ Date _____ Time _____ Location _____

B. Laboratory
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Date: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Practical Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Practical Exam: Mo _____ Date _____ Time _____ Location _____

C. Laboratory Report Schedule

Experiment	Due Date		Experiment	Due Date	
Unit # 1	Mo _____	Date _____	Unit # 7	Mo _____	Date _____
Unit # 2	Mo _____	Date _____	Unit # 8	Mo _____	Date _____
Unit # 3	Mo _____	Date _____	Unit # 9	Mo. _____	Date _____
Unit.# 4	Mo _____	Date _____	Unit # 10	Mo _____	Date _____
Unit # 5	Mo _____	Date _____	Unit # 11	Mo _____	Date _____
Unit # 6	Mo _____	Date _____			

D. Instructor:

1. Name: ______________________________

2. Location: Building __________ Room _______

3. Phone: 817/668-7731 Ext: _____

4. Office Hours:
Monday __________ to __________
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GAINESVILLE HIGH SCHOOL

ELECTRONICS

SYLLABUS

I. **COURSE**: Solid State Devices And Analog Circuits

II. **TEXTS**: *Electronic Devices and Circuit Theory*, Fourth Edition, Boylestad and Nashelsky, 1987, PrenticeHall, Inc.
Electricity-Electronics Fundamentals, Third Edition, Zebar and Sloop, 1986, McGraw-Hill, Inc.

III. **TERMINAL OBJECTIVES**: Upon successful completion of this course of study, each student will have demonstrated mastery of solid state devices and analog circuits, laws, and applications by attaining an overall grade of C or above on written examinations, laboratory reports, and practical examinations. Each enabling objective will define specific bodies of knowledge and/or skills to be learned. The expected competency level for each enabling objective is 100% unless otherwise stated. The evaluation of levels of competencies for each enabling objective will be in accordance with procedures outlined in Section VI and VII of this syllabus. Grades will be awarded based on that procedure.

IV. **ENABLING OBJECTIVES**: Each student will be able to:

1. Read, understand, and follow the standard safety rules.while in an electronics classroom and/or laboratory. The expected level of performance is absolute without exception.
2. Analyze selected circuits from an operational stand point.
3. Adapt standard circuits to satisfy system requirements.
4. Troubleshoot circuit failures, and correct faulty circuits.
5. Design oscillators to meet circuit requirements.
6. Design and build selected circuit configurations.
7. Signal trace through selected circuits, and predict the signal behavior (goes in - goes outs').
8. State the difference between a conductor, an insulator, and semiconductor.
9. Explain electron and hole flow theory in semiconductors and how they are affected by doping.
10. Define the term "diode" and a brief description of its construction and operation.
11. Explain how a diode can be used as a rectifier or a switch.
12. Identify diodes by their symbols.

13. Explain the procedure for testing semiconductor devices with an ohmmeter.
14. Explain characteristic curves for germanium and silicon semiconductor diodes.
15. Explain characteristic curves for zener diodes.
16. Design shunt zener regulated circuits.
17. List three different transistor amplifier configurations, bipolar and FET, and explain their operation.
18. Identify the different types of bipolar and FET transistor symbols.
19. Define beta, alpha, and transconductance.
20. Explain procedure and precautions for replacing semiconductor devices.
21. Test typical germanium and silicon semiconductor diodes.
22. Construct and test diode rectifier circuits.
23. Construct and test bipolar transistor and amplifier circuits.
24. Construct a typical junction FET amplifier and determine its transconductance.
25. Construct a typical insulated gate FET amplifier and test its operation.
26. Test and replace solid state diodes.
27. Test and replace transistors.
28. Describe the characteristics fo basic transistor amplifier circuits and explain their operation.
29. Design basic transistor amplifier circuits.
30. Construct a basic common emitter amplifier.
31. Construct a basic common base amplifier.
32. Construct a basic common collector amplifier.
33. Troubleshot a discrete component power module.

V. COURSE OUTLINE

CONTENT

THEORY	LABORATORY
Unit 1 - Multi Stage Amplifiers:	Laboratory Orientation:
	1. Materials Location
	2. Safety
1. RC coupled Amplifiers	3. Laboratory Report Requirements
2. Transformer Coupled Amplifiers	
3. Direct Coupled Amps	
4. Optical Coupled Amps	Experiment — Unit 1
Unit 2 - Large Signal Amplifiers	
1. Class A Amplifier	
2. Class B Amplifier	
3. Class C Amplifiers	Experiment — Unit 2
Unit 3 - Special Purpose Transistors	
1. Silicon Cont. Rectifier	
2. Silicon Cont. Switch	
3. Light Activated SCR	
4. DIAC	
5. TRIAC	
6. Phototransistors	Experiment — Unit 3
Unit 4 – Operational Amplifiers	
1. Basic Differential Amp	
2. Basic Operational Amp	
3. Practical Op-Amp Circuits	
4. Op-Amp Application	Experiment — Unit 4
Unit 5 - Feedback Amplifiers	
1. Feedback Concepts	
2. Practical Feedback Circuits	
3. Feedback Ph & Freq. Consid.	Experiment — Unit 5
Unit 6 - Oscillators	
1. Oscillator Operation	
2. Phase-Shift Oscillator	
3. Crystal Oscillator	
4. Tuned Oscillator Circuits	
5. Voltage Controlled Oscillator	Experiment — Unit 6

Unit 7 - Multivibrators

1. Bistable	Experiment – Unit 7
2. Monostable	Experiment – Unit 8
3. One Shot	Experiment – Unit 9

VII. METHODS OF EVALUATION:

Evaluation will be competency based utilizing the following tool:

1. Written Examinations
2. Laboratory Experiment Reports
3. Practical Examinations
4. Unannounced Quizzes
5. Daily Observations

VIII. GRADES:

GRADES: A letter grade will be awarded to each student according to their numeric standing as outlined below:

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75 - 79	C
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Below 69	F

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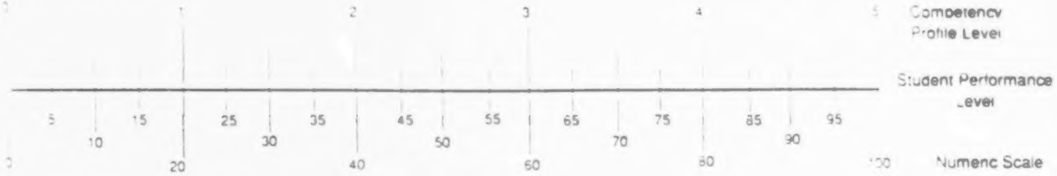

Major Written Examinations	=	50%
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	TOTAL		89

Numeric Score = 89 = B

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1. Students are expected to be prompt, courteous, studios, and honest.
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X. ADMINISTRATIVE INFORMATION AND/OR REQUIREMENTS:

A. Lecture
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Dates: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Exam: Mo _____ Date _____ Time _____ Location _____

B. Laboratory
1. Location: Building _____ Room _____
2. Time: Start _____ Stop _____
3. Date: M _____ Tu _____ W _____ Th _____ F _____ S _____
4. Mid-Term Practical Exam: Mo _____ Date _____ Time _____ Location _____
5. Final Practical Exam: Mo _____ Date _____ Time _____ Location _____

C. Laboratory Report Schedule

Experiment	Due Date		Experiment	Due Date	
Unit # 1	Mo _____	Date _____	Unit # 6	Mo _____	Date _____
Unit # 2	Mo _____	Date _____	Unit # 7	Mo _____	Date _____
Unit # 3	Mo _____	Date _____	Unit # 8	Mo _____	Date _____
Unit.# 4	Mo _____	Date _____	Unit # 9	Mo._____	Date _____
Unit # 5	Mo _____	Date _____			

D. Instructor:

1. Name: _______________________________________

2. Location: Building _____________ Room _________

3. Phone: 817/668-7731 Ext: _____

4. Office Hours:

Monday	__________	to	__________
Tuesday	__________	to	__________
Wednesday	__________	to	__________
Thursday	__________	to	__________
Friday	__________	to	__________

NOTE: Students are encouraged to visit during office hours, and other times of opportunity, to resolve problems of any nature.

2 + 2 ELECTRONICS PROJECT
REFERENCE TEXT

A C ELECTRONICS
Philip Wheeler
1988
Heath Company
ISBN 0-87119-137-7

A C ELECTRONICS/INSTRUCTORS GUIDE

A C ELECTRONICS/STUDENT WORKBOOK
ISBN 0-87119-148-2

ADVANCED ALGEBRA
Thomas J. McHale & Paul T. Witzke
1972
Addison-Wesley Publishing Company
ISBN 0-201-04633-4

ANALOG SWITCH AND IC PRODUCT DATA BOOK
January 1982
Siliconix Incorporated

APPLIED ALGEBRA (1) I
Thomas J. McHale & Paul T. Witzke
1979
Addison-Wesley Publishing Company
ISBN 0-201-04767-5

APPLIED ALGEBRA (2) II
Thomas J. McHale & Paul T. Witzke
1980
Addison-Wesley Publishing Company
ISBN 0-201-04775-6

APPLIED TRIGONOMETRY
Thomas J. McHale & Paul T. Witzke
May 1985
Addison-Wesley Publishing Company
ISBN 0-201-04723-3

BASIC ALGEBRA
Thomas J. McHale & Paul T. Witzke
June 1971
Addison-Wesley Publishing Company
ISBN 0-201-04625-3

BASIC ELECTRICITY TEXT LAB MANUAL
Fifth Edition
Paul B. Zbar
1983
McGraw-Hill
ISBN 0-07-072801-1

BASIC ELECTRONICS
Fifth Edition
Bernard Grob
1984
McGraw-Hill Book Company
ISBN 0-07-024928-8

BASIC PROGRAMMING FOR SCIENTISTS AND ENGINEERS
Wilbert N. Hubin
1978
Prentice-Hall, Inc.
ISBN 0-13-066480-4

BASIC TECHNICAL MATHEMATICS WITH CALCULUS
Fourth Edition
Allyn J. Washington
1985
The Benjamin\Cummings Publishing Company, Inc.
ISBN 0-8053-9545-8

BASIC TRIGONOMETRY
Thomas J. McHale & Paul T. Witzke
1971
Addison-Wesley Publishing Company
ISBN 0-201-04631-8

CALCULATOR DECISION MAKING SOURCEBOOK
Texas Instruments
ISBN 0-89512-014-3

CIRCUIT ANALYSIS/INSTRUCTORS MANUAL
Irving L. Kasow
1988
John Wiley & Sons, Inc.
ISBN 0-471-63640-1

D C ELECTRONICS
Karl Wojcikiewicz & Jim Fry
1987
Heath Company
ISBN 0-87119-058-3

D C ELECTRONICS STUDENT WORKBOOK
Philip Wheeler
1978
Heath Company
ISBN 0-87119-126-1

DC ELECTRONICS INSTRUCTORS GUIDE
Phillip Wheeler
1988
Heath Company

DESCRIPTIVE GEOMETRY VIA MICROCOMPUTER
J.J.McNeary, R.F. Perras, D.J. Whealon
1985
Kendall/Hunt Publishing Company
ISBN 0-8403-3661-6

DESIGN, DRAFTING AND CONSTRUCTION PRACTICES FOR ELECTRONICS
Cortland C. Doan
1985
Breton Publishers
ISBN 0-534-04722-X

DIGITAL COMPUTER ELECTRONICS
Second Edition
Albert Paul Malvino, PhD.
1983
McGraw-Hill Book Company
ISBN 0-07-039901-8

DIGITAL COMPUTER ELECTRONICS/EXPERIMENTS
Second Edition
Michael A. Miller
McGraw-Hill Book Company
ISBN 0-07-039902-6

DIGITAL ELECTRONICS
Second Edition
John D. Kershaw
1983
Breton Publishers
ISBN 0-534-01471-2

DIGITAL ELECTRONICS/ACTIVITIES MANUAL
Second Edition
Roger L. Tokheim
1984
McGraw-Hill
ISBN 0-07-064981-2

DIGITAL ELECTRONICS TEACHER'S MANUAL
Second Edition
Roger L. Tokheim
1984
ISBN 0-07-064982-0

DIGITAL SYSTEMS PRINCIPALS AND APPLICATIONS
Fourth Edition
Ronald J. Tocci
1988
Prentice-Hall. Inc.
ISBN 0-13-213034-3

DIGITAL TECHNIQUES BOOK 1
Jim Fry
1978
Heath Company
ISBN 0-87119-118-0

DIGITAL TECHNIQUES BOOK 2
Jim Fry
1978
Heath Company
ISBN 0-87119-118-0

DIGITAL TECHNIQUES BOOK STUDENT WORKBOOK
ISBN 0-87119-119-9

DIGITAL TECHNOLOGY/INSTRUCTORS GUIDE
Second Edition
Gerald E. Williams, P.E.
1982
Science Research Associates
ISBN 0-574-21557-3

ELECTRICITY ELECTRONICS FUNDAMENTALS LAB MANUAL
Third Edition
Paul B Zbar & Joseph G. Sloop
1986
McGraw-Hill Book Company
ISBN 0-07-072817-8

ELECTRICITY PRINCIPLES AND APPLICATIONS MANUAL
Second Edition
Richard J. Fowler
1984
McGraw-Hill
ISBN 0-07-021708-4

ELECTRONIC CIRCUITS
Jim Fry
1978
Heath Company
ISBN 0-87119-143-1

ELECTRONIC CIRCUITS/INSTRUCTORS GUIDE

ELECTRONIC FUNDAMENTALS
Philip E. Wheeler
1989
Heath Company
ISBN 0-87119-188-1

ELECTRONIC INSTRUMENTS AND MEASUREMENTS
Larry D. Jones, A. Foster Chin
1983
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TRW
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LSI Products Division, TRW ELectronic Components Group

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2 HIGH SCHOOL
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ELECTRONICS

Electronics Technology

Electronics Engineering Technology

Offered Jointly By
COOKE COUNTY COLLEGE
GAINESVILLE INDEPENDENT
SCHOOL DISTRICT

Cooke County College
Gainesville Public Schools

2+2
ELECTRONICS

There is no doubt that we are living in an electronic age. Electronics technology touches all our lives every day — probably every minute of every day.

And the rapid development of new electronically controlled devices — from lightning fast, postage stamp-sized calculators to the computerized telemetry systems which guide space ships to the far reaches of our solar system — shows no sign of slowing down. An important result is the creation of thousands of new vocational and career fields that didn't even *exist* only about a decade ago.

Only one thing stands between you and a career in the exciting, high-tech world of electronics — the right kind of education/training.

Start Your Training As A High School Junior

That's right, thanks to a unique new program being offered jointly by Cooke County College and the Gainesville Independent School District, you can begin the crucially important math component of your formal training for a career in electronics in your junior year of high school. Through a special "articulation agreement*," CCC and GISD will offer students the opportunity to get *four full years* of electronics training — two in high school plus two in college.

This "2+2" program gives students two options to choose from depending upon their career goals:

Electronics Technology Program

This program, which earns graduates a two-year Associate of Applied Science degree, is designed to prepare students for immediate entry into the job market. Upon completion of the high school portion of the program, students should be qualified for semi-skilled, entry-level positions above minimum wage. Upon completing the second year of college-level studies, in which state-of-the-art electronics technology will be stressed, students should be qualified to enter the work force at a skilled technician level in career fields requiring a broad base of electronics knowledge, such as:

- Electronics manufacturing
- Technical writing
- Electronics installation & servicing
- New product development

Electronics Engineering Technology Program

Students completing this program will receive the same state-of-the-art electronics training (and the same AAS degree) as those completing the Electronics Technology program described above. In addition, however, they will have *more transfer credit* for continuing their education to at least the four-year bachelor of science degree level in Electronics Engineering at a senior college or university. This additional education and training, of course, also increases earning potential.

Questions & Answers For High School Students

Q. Is this program aimed mostly at male students?

A. Not at all. In fact, electronics is a great career field for both men *and* women, with wide ranging job opportunities available to both.

Q. Do I need to be pretty good in math to get into this program?

A. Yes. It is a simple fact that a strong math background is an absolute necessity for anyone working in the field of electronics — simply because so much of electronics theory is mathematically based. The first courses you'll be taking in this program as a tenth grader are math courses – Technical Algebra and Trigonometry. Students in lower grades who have sights set on a career in electronics should work especially hard to build a strong foundation in math.

Q. Exactly how much electronics training will I get in high school?

A. You'll earn a total of 15 semester hours (in college terminology) which translates to five separate courses – two in math and three in electronics.

Q. Will I get high school credit or college credit (or both) for these courses?

A. You will earn full high school credit that will count toward graduation. In addition, these credit hours will be "held in escrow" for you at Cooke County College. To get them counted as college credit, you must enroll at CCC and complete six *additional* college credit hours. When you've done so, those first 15 hours will be "applied to your account," so to speak, and you will have a total of 21 hours of college credit (which, if you wish, can be transferred to any other college of your choice).

And here's another option: CCC also offers (separate and apart from the 2+2 Electronics program) a program called "concurrent enrollment" or "early admissions" through which students can (with permission) enroll in certain college-level courses and earn college credit *while still in high school*.

The bottom line is that a student can, by *concurrently* enrolling in other college courses while still in high school, go ahead and satisfy that requirement for an extra six hours needed at CCC to make the 15 high school hours in electronics count as college credit. In other words, an electronics student could conceivably finish high school with 21 full hours of transferable college credit already earned.

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*You may see or hear this word "articulation" used often in reference to the 2+2 Electronics program and especially to individual courses. It simply means that CCC and GISD have a formal, binding written agreement to jointly offer the program, each teaching certain specified courses on a cooperative basis.

Q. Do I have to pay college tuition and fees for the 2+2 Electronics program courses I take in high school?

A. No, but you *do* have to pay regular college tuition and fees for any *concurrent enrollment* or *early admissions* courses you take in high school for college credit.

A Message To Non-High School Students Who Would Like To Study Electronics At CCC

Although this brochure is aimed primarily at middle school and high school students, it should be clearly understood that Cooke County College also will be offering vocational-technical programs in electronics for persons past high school age.

The courses of study will be very similar to those described here for students enrolling in the 2+2 program, except that the first semester (and possibly a summer session) would be devoted to the basic math courses and electronics fundamentals courses the 2+2 students would take as high school juniors and seniors.

Students entering the program as college freshmen would work toward the same two-year Associate of Applied Science degree in either Electronics Technology or Electronics Engineering Technology.